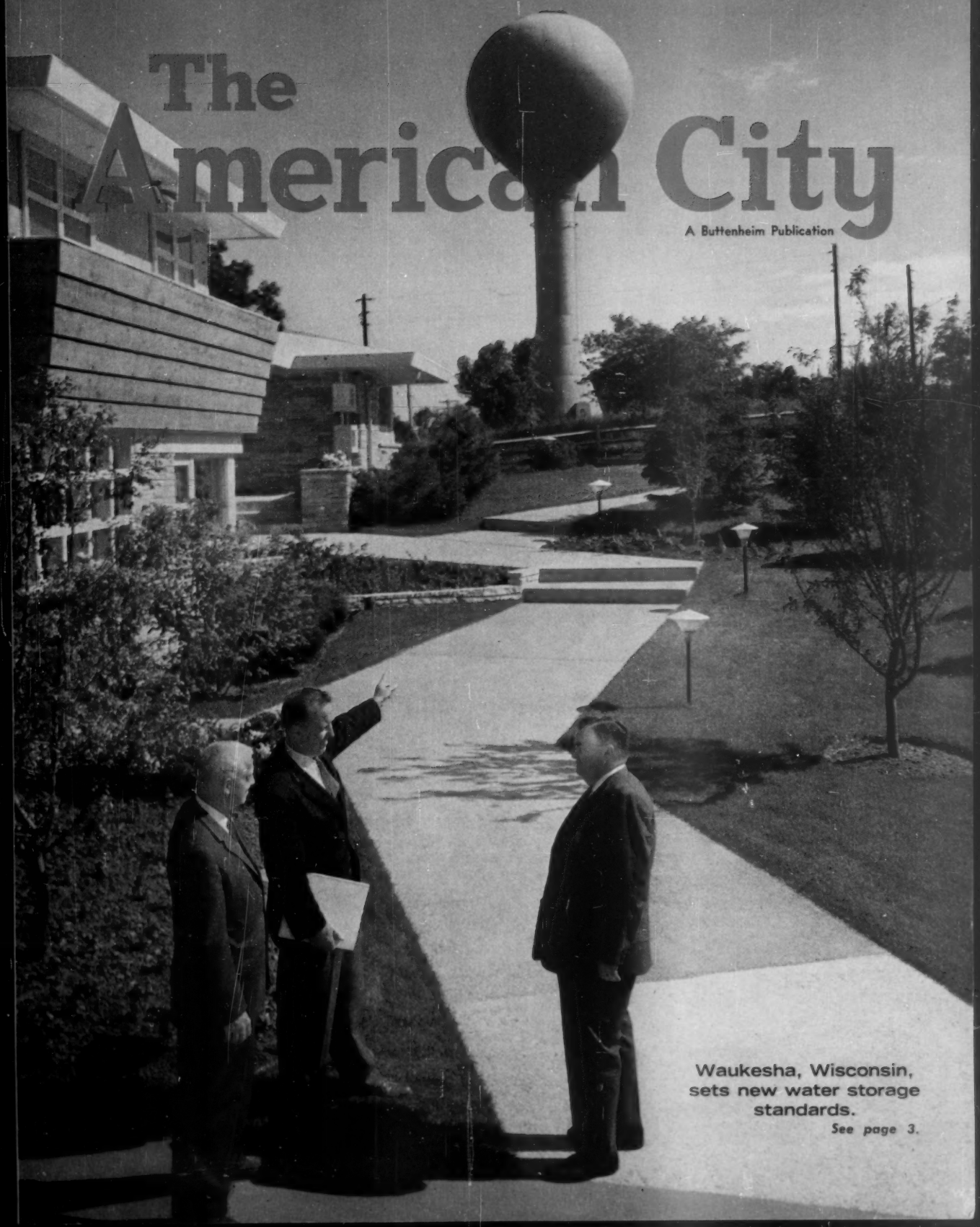
NOVEMBER 1960

The American City

A Buttenheim Publication



Waukesha, Wisconsin, sets new water storage standards.

See page 3.

ASPHALT speeds paving of city streets

When a city paves a street, it is important to traffic, as well as to businesses and residents along the street, that the work be completed as quickly as possible.

Hot-mix Texaco Asphaltic Concrete paving, in addition to its rugged durability and low upkeep cost, is not only speedily laid but requires no time-consuming curing period.

This means that traffic, business and residents are subjected to a minimum of inconvenience when streets are paved with Texaco Asphalt.

The speed with which Asphalt paving is laid also is an important advantage in the construction of municipal airports and municipal parking areas.

Durable, joint-free Texaco Asphalt pavements are speedily laid—need no time-consuming curing period.

HELPFUL ASPHALT BOOKLETS. Texaco Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils offer the city official a number of heavy-duty, intermediate and low-cost types of construction for streets, airports and parking areas. Useful information on the methods and materials recommended for all of these types is supplied in two free booklets. You can secure copies without obligation by writing to our nearest office.

TEXACO INC., Asphalt Sales Div., 135 E. 42nd Street, New York 17
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TEXACO

TEXACO ASPHALT

The American City
A Buttenheim Publication

NOVEMBER 1960

MAGAZINE OF MUNICIPAL MANAGEMENT AND ENGINEERING

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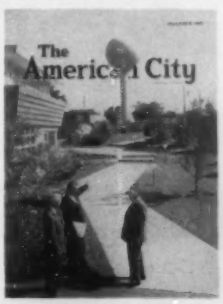

COVER PICTURE

Elevated water tanks can be good neighbors in residential areas as illustrated by this installation in Waukesha, Wisconsin. Home owner Paul Strong (left) looks on as Joseph H. Kuranz (center), Manager and Chief Engineer of Waukesha's water utility, discusses various features of the Chicago Bridge & Iron Co. tank with Mayor Harold T. Owens. The utility departed from conventional practice by selecting a highly reflective turquoise-colored paint for this 100,000-gallon watersphere and a similar tank of 250,000 gallons capacity located in another residential area. For the story on Waukesha's water reservoir, see page 91.

Telephone service has never been so fast, convenient and dependable as it is today

...and it's going to be better!

Two words—*growth and change*—describe major trends in the Bell telephone business. There is more of every kind of service for more people. And more and more new things are coming along all the time.

Direct Distance Dialing is bringing a new era of speed and convenience in Long Distance calling.

Nearly 24,000,000 customers can now dial Long Distance calls direct to 39,000,000 telephone numbers in the United States and Canada.

New underseas cables make it easy to talk across oceans as clearly as a call across town.

An entirely new era in communications for business is being opened up by the Bell System's Data-Phone service. It enables electronic business machines to "talk" to each other over regular telephone lines. Some day there may be more of those calls than calls between people.

Those are some of the new services. Just a few of the other newer things are shown on the right.

There's much more to come . . . from research and development, from the investment of millions of dollars of new capital, and from the Bell System's never-ending desire to give you the best and the most telephone service in the world.

CALL DIRECTOR TELEPHONE

With the touch of a button you can connect other office telephones, set up interoffice conference calls, add other office extensions to incoming calls. Two models, 18 and 30 push buttons. Many thousands already in service.

THE PRINCESS

It's little! It's lovely! It lights! A new compact extension telephone for any room in the house. A tremendous success all over the country. Available in white, beige, pink, blue and turquoise.

BELLBOY SERVICE

One of the newest Bell System services. A person away from the telephone hears a tone signal (sent from the telephone exchange) on a pocket radio receiver. Alerts him to call his home or office to get a message. Now available in 14 major cities.

HOME INTERPHONE

Lets you call any other room in the house that has a phone. Or switch outside calls to another phone. Also lets you answer the door from any phone. Microphone in telephone and speaker on wall beside each telephone enable person in other room to talk back without lifting receiver. Will be available nationally next year.

BELL TELEPHONE SYSTEM

Volume 75 Number 11

The American City

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LETTERS TO THE EDITOR

Supports "Yield" Signs

Just a civilian, I'm probably stepping out of my league, but I can't resist commenting on the note from A. H. Colby, city manager of Nyssa, Ore., ("Placing STOPs to Get Attention," September 1960, p. 149.)

I'm a strong supporter of the use of "yield right of way" signs to be used where a full stop is not required for safety. My main reason, I believe, is that it engenders respect for all traffic control signs, which have been placed as reasonably and realistically as possible.

Frequently the rolling-stop offender (while a true violator of the posted sign), is simply acting with caution reasonable to his judgment of the situation. If a careful traffic study is made of the location and a "yield right of way" sign is indicated and used, his respect for the stop sign when it appears will be enhanced.

Hence my concern that the "yield" signs were apparently blindly replaced to comply with state motor vehicle laws instead of properly re-evaluating the laws themselves. As the law was indicated by Mr. Colby, it would appear that a stop sign would also be in violation. Although it seems more reasonable that the law goes on to read that the motorist "shall yield the right of way to traffic approaching an intersection from the right—except at controlled intersections."

It may be that my regard for "yield" signs is misplaced. I would appreciate some information on this if it is available.

A. H. FRANKING
Jefferson Electric Co.
Bellwood, Ill.

EDITOR'S NOTE: Mr. Franking has a point, but if Manager Colby's legal counsel tells him that the "yield" signs are illegal in Oregon, what can he do—but yield.

To Key Officials

Just finished reading the September 1960 issue of THE AMERICAN CITY and thought I would drop you a note to tell you how much we enjoy your magazine, and the many fine ideas and articles available.

Every month your magazine is routed to our key officers for their information.

EDWIN S. HOWELL
City Manager
Richmond, Calif.

Planning for the Jet Airport

If the nation doesn't recognize that air transport is a form of mass transportation, it apparently is going to have to change its viewpoint. At the annual meeting of the American Society of Landscape Architects held in New York City recently, John P. Veerling, Chief of Aviation Planning for the Port of New York Authority pointed out that air transportation today *is* mass transportation and comprises over 42% of all intercity common carrier travel. Since both domestic and international air travel is increasing rapidly, careful airport planning is an essential if a city is to maintain its economic position relative to other cities.

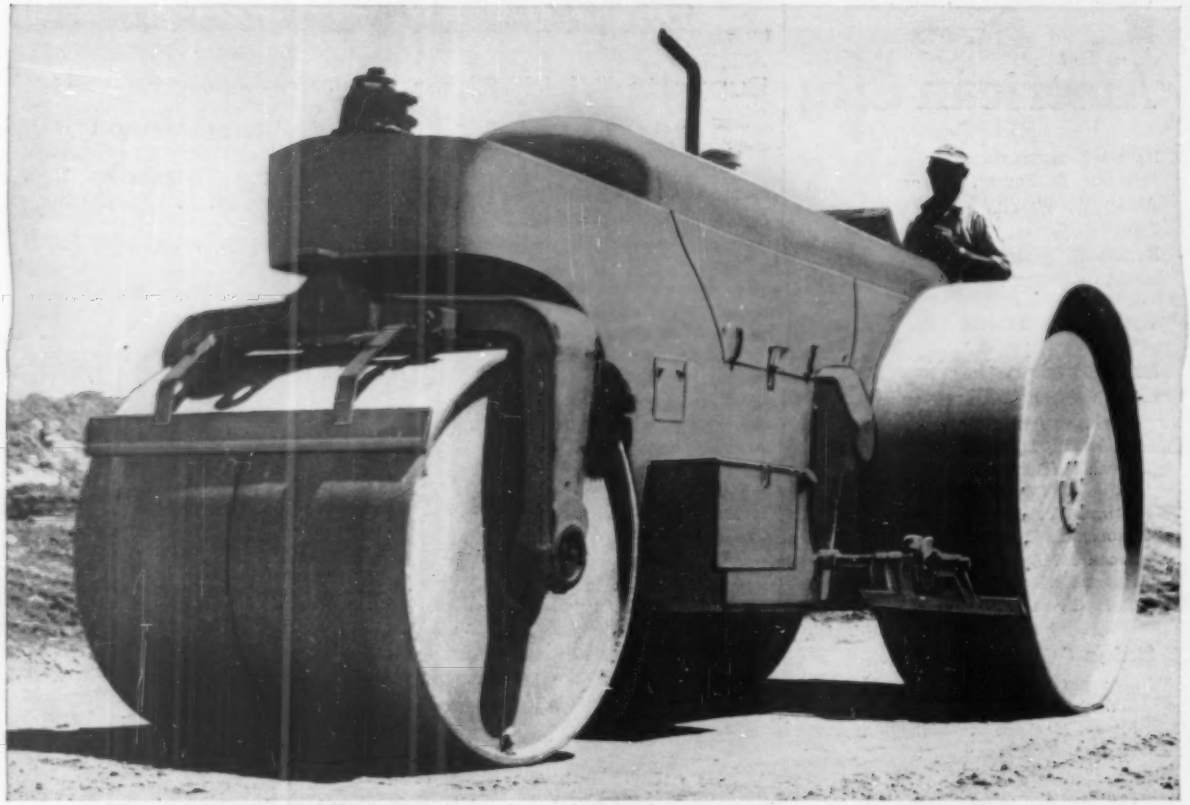
The planner, he emphasized, must be aware of the extensive operating space requirements for a modern airport and make provision in his current plans. Otherwise the space factor pushes farther and farther from the traffic generating center the nearest area that is acceptable for such a modern airport, thus deterring community growth.

Planners also should know that an airport not only generates more business by making an area more easily reached, but the personnel needed for such an airport also generates business. He cited New York International Airport as an example. It employs over 23,000 persons with a payroll of over $150,000,000. These in turn create employment for an additional 57,000 persons, making a total of 80,000 employees with total annual income of almost a half billion dollars, or the equivalent of the total labor force in an area of over 220,000 residents. In addition Mr. Veerling said that the airport provides employment for many thousands who provide goods and services to the airport.

Thus the planner must anticipate the added demands for housing, goods, services and other facilities required by this increased labor force.

He said that today we have the

(Continued on page 18)



New enamels made with *M50* pigment give equipment better... longer protection... control under-the-film rusting.

New! One-coat equipment enamels with built-in rust inhibition...

keep on fighting rust even when damaged in service

Now, for the first time, you can have the rust inhibition of a primer and the durability of a finish coat, combined in a single coat of enamel.

And what is more, the paint can be tinted to match most standard equipment colors.

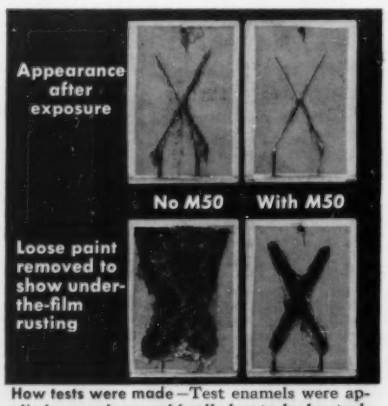
What gives these new one-coat enamels their exceptional properties is a unique new type of pigment, *M50*® basic lead silico chromate. In this pigment, the active ingredient is basic lead chromate solidly fused to an inert core. Fused lead chromate has not only exceptional rust inhibiting action, but also superior resistance to weathering.

Greatly inhibits under-the-film rust creepage, too

As you've probably noticed, when ordinary enamels are nicked or damaged in service the rust that starts spreads under the paint in no time. As this rust creepage progresses, paint flakes off to open the way for further corrosion.

Exposure tests (see photograph at right) at National Lead Laboratories show that this damage is very sharply reduced when *M50* pigment is in the enamel.

Before you order paint again . . . look into these unusual new enamels. They can be made up by your regular paint suppliers in nearly all standard equipment colors.



How tests were made—Test enamels were applied over clean, cold-rolled auto body steel, scored, and then exposed to 5% salt fog for 300 hours. The two panels at top permit you to compare appearance of enamels after exposure. The two panels at bottom have loose paint removed so that you can compare the true extent of rust creepage under each enamel. Note also, the greater film strength shown by the *M50* enamel.

M50® an oncor® *Pigment... A Development of* **National Lead Company**

General Offices: 111 Broadway, New York 6, N.Y.

The "Science" of Street Names

The orderly way for a municipality to name its streets and number its lots has puzzled many city administrators and created a host of amusing incidents. Wrapped up in the identifying of streets is a certain amount of simple logic mixed with a great deal of human nature. A person's name, and his address, are almost as much a part of him as his appearance and personality.

Basically, this business of naming and numbering of streets does not have to be complicated. The objective needs of the local government are direct and simple. The street system should:

- **be orderly enough so that those who *need* to find their way, can do so. It should not be confusing to the fire department, the police, refuse collection crews, the mail men, delivery boys.**
- **avoid identifying streets by names with similar sounds. For example, names like "Clark" and "Park," or "Beach" and "Peach" often can create disastrous delays for firemen, police, ambulances rushing to a scene of call.**

In the past, when cities designed their streets according to the old, orderly grid system, there was a sort of unwritten law that streets ran east and west, and avenues, north and south. Main Street generally was the principal artery, and often Central Avenue, the principal north-south artery. House numbering extended outward, starting from Main Street, or Central Avenue. Streets were generally labeled "north" or "south" depending on whether they lay north or south of Main Street. As a rule, the avenues did not require labelling "east" or "west" since they had names instead of numbers.

Frequently, those old city administrators with especially orderly minds would carry this a bit further by naming the avenues in alphabetic sequence. This would cause some trouble when a city developed more than 26 avenues on one side. But they had ways of dealing with this.

In general, an avenue had just a little higher status than a street. One can conjecture why this was but it would be pure speculation. Certainly there was no real logic back of it.

However, as we know, the old grid-type street layout, popular with city planners for some 2,500 years, suddenly lost favor. Mr. and Mrs. Average Citizen grew tired of streets lined up in neat, military array, and expressed preference for winding, "lane," "terrace," "drive," even "alley," anything but a street or avenue.

This caused some headaches for those who have to provide the house numbers. Most solved it by deciding whether the street is predominantly east-west or north-south. Then they number the houses accordingly.

At the same time, tastes in street names changed. At one time, Mr. and Mrs. Citizen liked streets named for presidents or local citizens who had achieved honor. When they would run out of these, they would fall back on trees—Oak, Elm, Beach, etc.

Today, Mr. and Mrs. Citizen apparently have gone *rustic; the more bucolic the name, the better they* like it. We see Hayloft, Barnyard, Peachtree, Dogleg and many similar names blossoming in new residential areas as builders try to infuse rural, ready-made charm into these new, split-level communities.

Mr. and Mrs. Citizen will change street names also. MacArthur Boulevards for example have appeared all over the nation after World War II, generally when possibly Fifth Street, for example, was being widened to become a main artery.

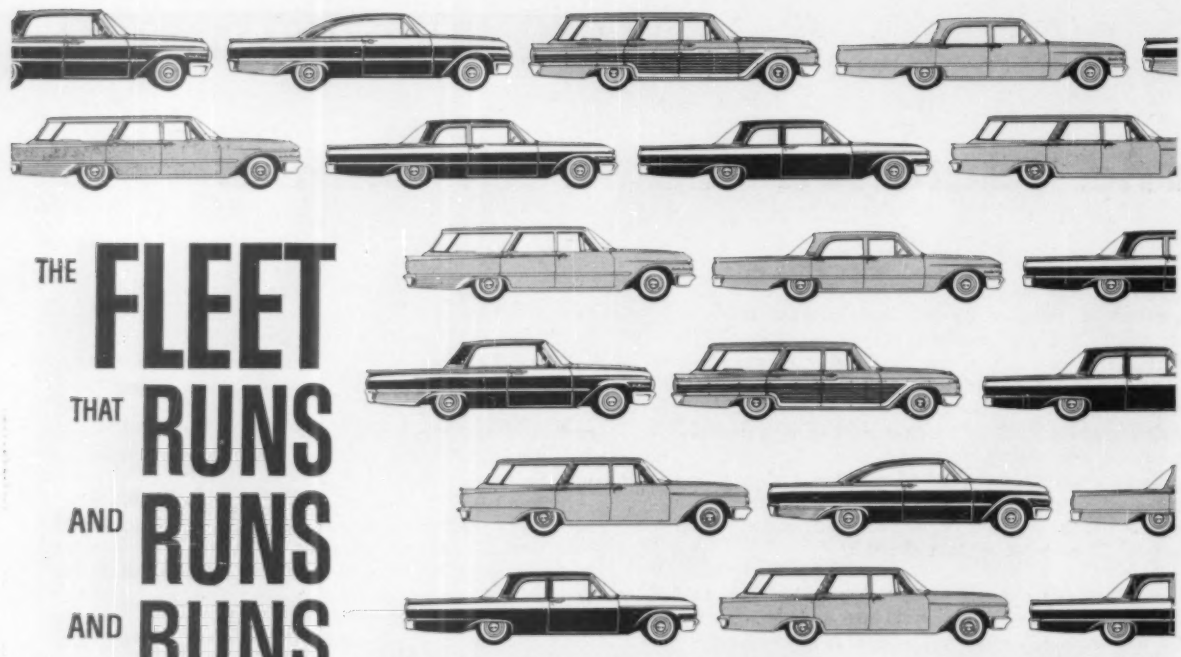
The people get dissatisfied with the names of their streets, often for understandable reasons. Patriotism during World War II caused objection to names like "Berlin" or "Japan." However, who can blame residents of Easy Street in Woodland, Calif., who became sick and tired of obvious wisecracks, and petitioned a change? One can also understand why New Yorkers, years ago, became annoyed with the name "Smell Street" and successfully changed it to "Broad Street." Or "Dirty Lane" which they changed to "South William Street."

Nevertheless, the public should and generally does change street names reluctantly. Historic old names become the culture of a city, and write their indelible stories about the history of a nation. Fortunately, Wall Street still remains, commemorating the time when it was the location of a stockade, protecting a struggling little community; fortunately for the nation, New Orleans still has its Basin Street and San Francisco its Market Street.

We can chuckle over those residents of Incinerator Road in New York's suburban town of Eastchester who petitioned for a change. Town officials, with a delightful sense of humor, changed the name to Burnam Drive.

Perhaps we can express some annoyance with those Ridgefield, Conn., residents who petitioned for a name change from Standpipe Road to Peaceable Ridge. (The editor of a contemporary magazine serving a segment of the municipal field became annoyed indeed and blamed it all on the city planners, who, innocent bystanders, had utterly nothing to do with it.) After all, Standpipe Road says something about Ridgefield, Conn., just as Canal Street tells a bit of history about New York City. Moreover, peace is not a term that should be bandied around casually in this fretful world.

In the naming of streets, we repeat, there must be some order, with a large portion of human consideration. In the last analysis, the public would like a street name system that will enable those who *need* to find their homes to do so without trouble. And for privacy's sake, they would just as soon have it sufficiently complicated to create some difficulty to those who do not need to come.



THE FLEET THAT RUNS AND RUNS AND RUNS AND SAVES AND SAVES AND SAVES

The 1961 Ford is beautifully built to take care of itself . . .
to cut down on downtime . . . to lift your budget at trade-in time . . .
to keep your Fleet rolling all the time!

Never before in history has a car been offered to Fleet buyers with such confidence as the 1961 Ford.

In the first place, Ford is the car that is built to take care of itself. It lubricates itself . . . it cleans its own oil . . . it adjusts its own brakes . . . it protects its own mufflers, its body metal and finish.

But that's not the half of it! Ford Dealers take such pride in the quality, design and durability of the 1961 Ford that they led the industry in extending the warranty on their 1961 cars to 12,000 miles or one year, whichever comes first. Your Ford Dealer has the details. Let your Ford Dealer show you this warranty and explain the advantages.

And there's more news! Steering is 25% easier. Trunk space is more accessible, provides more usable room. There are fleet-size interiors, too. Front seats have *thick* foam padding. Passengers are snugly insulated against sound and weather. And, in line with Ford's policy of building cars to better accommodate people, doors are wide . . . entry is easy.

No wonder so many buyers are putting their money on the '61 Ford. Its potentially high resale value and unique, new saving ways will mean dollars-and-cents benefits to fleet owners.

PREFIGURE YOUR FLEET SAVINGS with these '61 Ford takes-care-of-itself features

Chassis lubrication. The '61 Ford will normally go 30,000 miles without a chassis lubrication. Match that against your present lubrication costs.

Oil changes. You can plan on changing oil only at 4,000-mile intervals.

Brake adjustments. Cross this one off your list altogether. New Ford brakes mechanically adjust themselves automatically.

Muffler replacements. Divide the usual muffler expense by three. Ford mufflers are double-wrapped and aluminized and will normally last three times as long as ordinary mufflers.

Body corrosion. All vital underbody parts are specially processed to resist rust and corrosion . . . even to galvanizing the body panel beneath the doors.

Wax jobs. As an extra dividend, Ford's Diamond Lustre Finish *never* needs waxing.

Beautifully built for economy and lasting value . . . **'61 FORD**

OUR MUNICIPAL NOTEBOOK

ONE OF THE MOST CHARMING

. . . small-city civic centers is nestled in the Smoky Mountains of Tennessee. Gatlinburg's civic center has an auditorium that can seat 3,500 people and houses all administrative offices, the fire station, jail, and library. The building's beauty is enhanced by use of Glulam Tudor arches. These are glued, laminated members made of Douglas fir, fabricated by Timber Structures, Inc., and provide support for natural stone sidewalls.

* * *

POLICE DOGS

. . . are a big help. If you want to know how much, drop a note to Baltimore's Police Commissioner, James M. Hepbron. Almost daily,

police officers report that fugitives immediately give up ideas of fleeing at the sight of the dogs. Some run to the policemen for protection. Baltimore has 50 dogs on active duty, and hopes to build this to 100.

* * *

FOR CORROSIVE CHEMICALS

. . . required for water purification, Dallas, Tex., uses two-inch plastic pipe to transport chlorine gas some 1,600 feet under a pressure of 30 pounds per square inch or less. The plant also uses plastic pipe as drain lines from the chemical feed machines to the sewer for ferric sulphate, aluminum sulphate, and slaked lime in solution. The first of these lines went into service in 1955. The pipe used is a blend of rubber and plastic made by the Naugatuck Chemical Division, U. S. Rubber Company. The installations consist chiefly of four-inch lines installed in 20-foot lengths with cemented-in-place sleeve-type fittings. Dallas has found it less costly, easier to install than metal pipe previously used.

* * *

NEW STREET LIGHTING STANDARDS

. . . in Philadelphia call for three sizes of mercury lamps of the white, long-life, high-maintenance type:

- 175-watt, on residential streets with moderately light traffic, and in possible crime areas.
- 400-watt, on all streets with moderately heavy traffic.
- 1,000-watt, on White Ways and extra-wide boulevards.

A start has been made to convert the bulk of the old residential street lighting from 2,500-lumen series to 189-watt multiple. All aerial - wired and most underground-wired lights are installed on 240-volt multiple with individual photoelectric controls.

* * *

THE MOST POPULAR SNOW PLOW

. . . in cities where snow plowing is serious business is the reversible tripping type. Nearly half the plows are of this type; roughly 15% are V-type plows; and the remainder are scattered among reversible rigid, one-way tripping, one-way rigid, and rotaries.

* * *

YOU DON'T NEED DIGESTERS

. . . in Missouri if your sewage purification plant dehydrates the sludge on a vacuum filter and then you dispose of the sludge in a sanitary fill. This is the practice followed by the little city of Belton, Mo., with a population of 3,010. To dehydrate the undigested sludge, the plant uses a 100-square-foot Komline Sanderson coil filter. The Missouri Department of Public Health and Welfare recommends burying the sludge in a sanitary fill.

If you want more information on these topics, or any other municipal problems, drop a note to:

The Editors
THE AMERICAN CITY
470 Park Avenue South
New York 16, New York

IMPROVED SANITARY LANDFILL

Johnson City, Tenn., dropped its old ramp-type of operation, and switched to a trench-type system. The city now excavates a trench 24 feet wide and from 10 to 12 feet deep and from 300 to 400 feet long, using an International tractor equipped with a Drott Bull-Clam shovel.

* * *

RUBBER-TIRED TRACTORS

. . . for sanitary fills? They work just fine in Buchanan, Mich. The city finds that they are mobile, fast, compact the refuse thoroughly, and don't suffer as many tire injuries as one would expect. City Manager William F. Wilson reports that two of the original Goodyear Hardrock tires lasted three years and nine months before replacement; two are still in service. Buchanan uses a Michigan Model 75A tractor shovel for this work. When required, it also can be used for other duties around the city.

* * *

ORPHAN FIRE HYDRANTS

. . . are no longer a problem in Maywood, Ill. Over a period of six years this department of public works replaced roughly 250 of these obsolete hydrants with new Eddy units, installing auxiliary valves at the same time whenever they were missing. The department did this

with its own forces, using a Ford tractor with a Sherman backhoe, and a second tractor with a Wagner end loader for the backfilling. ◄◄

Here's why the NEW No. 944 Traxcavator is bringing NEW standards to wheel loader operation

CHECK THESE FEATURES

- **2 cu. yd. bucket**
- **Power shift transmission** and torque converter—provide smooth, instant finger-tip shifting. No clutching necessary.
- **Travel-work range power selection**—travel range gives 2-wheel drive for roading. Work range automatically puts power to all 4 wheels.
- **Precision, 2-pedal brakes**—left brake neutralizes the transmission as it stops the machine . . . throwing all power to hydraulic system. This gives superior loading action in tough material. Right brake leaves the transmission engaged for full control of the machine when creeping or working on slopes.
- **Safe operation**—bucket lift arms and pivot points are completely in front of operator's area. This allows freedom of movement and wide visibility. Steps offer easy access. No need to climb over tires or bucket mechanism. Fenders protect operator from mud and stones . . . provide handy platform for checking engine.
- **Extra long reach**—50¾" at 7' dumping height—for faster, more accurate loading.
- **Choice of two new engines**—whatever your job or fuel requirement there's a No. 944 powered to meet the need. Diesel engine is compact, 4-cylinder turbocharged for maximum efficiency. Or there's a 6-cylinder gas engine.
- **105 HP***—delivered from either engine. Plenty of power for machine drive and hydraulic system.
- **4 speeds forward**—0-24 MPH.
- **4 speeds in reverse**—0-30 MPH. Reverse speeds are 25% faster than forward speeds to reduce cycle time.
- **Automatic kick-out devices** on bucket control levers—the lift control releases at dumping height. Tilt control positions the bucket for digging.
- **Accessible controls**—forward-reverse lever is located on steering column. Bucket controls are at the operator's right hand. Speed range selector and work-travel lever are on the operator's left . . . within easy reach. The No. 944 has push-button starting.
- **Full line of attachments available**—including forks, cab, special buckets, and the exclusive Caterpillar Side Dump Bucket that gives added efficiency . . . speeds cycle time.

**For comparative purposes, the maximum rating of the diesel engine is 135 horsepower.*

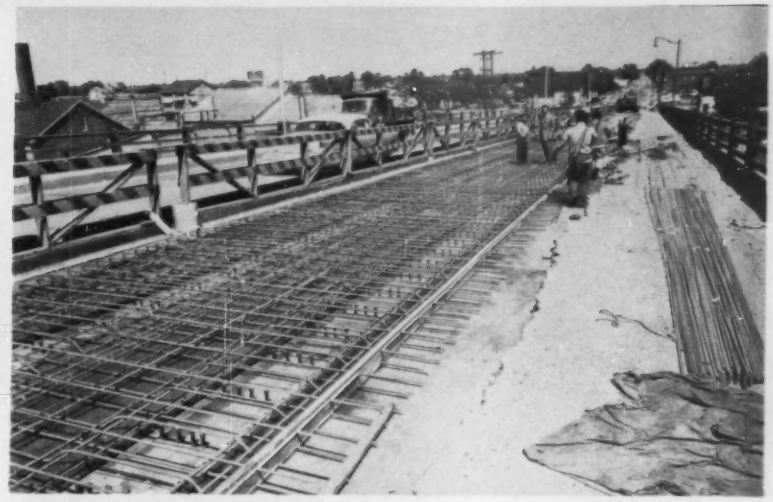
Add 'em up. All of these features are designed to give fast, easy, safe operation. Add bold new design, sound engineering, quality construction, responsible parts and service coverage. All of these make the No. 944 Traxcavator pay off big on any wheel loader operation. See your Caterpillar Dealer. Ask for a demonstration. Compare the No. 944 with other loaders you've seen. Then you'll discover why this machine has all the bonus features and performance potential to bring new standards to wheel loader operation *on your job.*

Caterpillar Tractor Co., General Offices, Peoria, Ill., U.S.A.

CATERPILLAR

Caterpillar, Cat and Traxcavator are Registered Trademarks of Caterpillar Tractor Co.

A GREAT NEW PRODUCT IN THE CATERPILLAR TRADITION



When replacing the deteriorated concrete surface on this bridge, engineers of the Illinois Division of Highways also upgraded the structure to carry heavier loads. Note the rows of end-welded studs used as sheer connectors.

Bridge Upgraded to Carry Heavier Traffic

Bonding a new concrete slab to the existing steel beams of the 1,500-foot-long Burr Oak Avenue Viaduct in Blue Island, Ill., provided the structure with the physical properties of a new bridge. This composite design also increased the load rating from H18-S15 to H20-S16 (AASHO load rating). The steel work was considered structurally adequate for the higher load rating.

According to the late V. M. Romine, Engineer of Bridge and Traffic Structures, Illinois Division of Highways, the prime reason for reconstructing the bridge was the deterioration of the seven-inch-thick roadway, although undesirable vibration and live-load deflection were also factors in deciding to rebuild. Bonding the new concrete slab to the steel beams reduced the vibration and deflection.

Because of their speed and convenience of application and because they permitted using one-half of the bridge while the other half was being rebuilt, the engineers chose to use Nelson end-welded studs as shear connectors. A total of 24,160 four-inch-long-by-⅞-inch-diameter studs were end-welded to the upper flanges of the bridge girders with a Nelson NS-9 stud-welding gun. They were installed at the rate of about three studs per minute, four in a row, with rows approximately six inches to 18 inches apart.

Since the concrete had to be replaced, the engineers considered composite construction the most economical method of stiffening the structure. If it had not been necessary to replace the concrete, welding cover plates to the bottom flanges of the beams might have been the most economical way to upgrade the structure. These plates would have increased the steel stiffness but probably would not have reduced vibration as much as composite construction. Under the circumstances, no cover plates were used. ◄◄

Over $12 Billion for Street Improvements

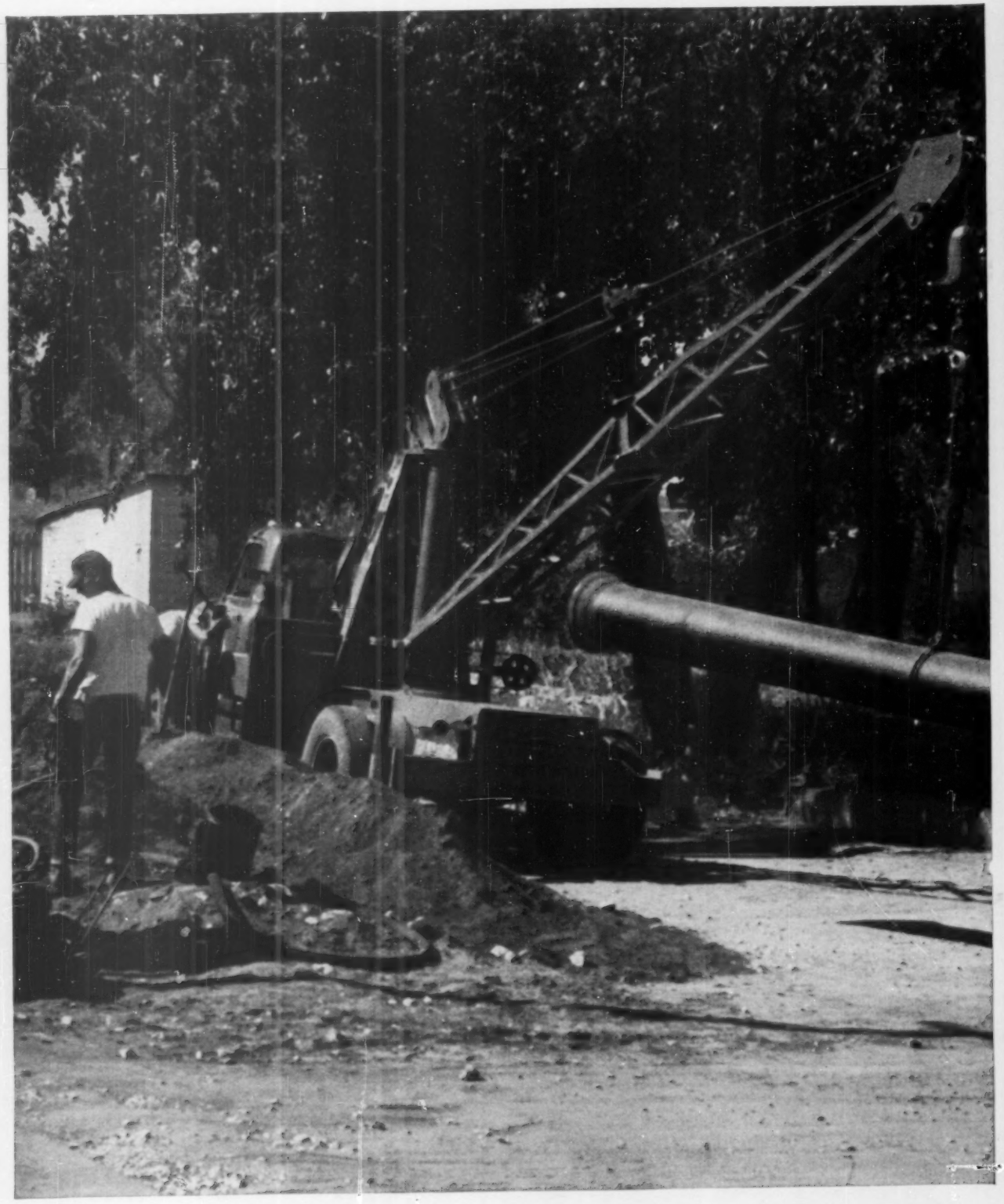
Some 100,000 miles of city streets and county roads in California will need improvement over the next 20 years at a total cost of about $12¾ billion. The improvements are or will be needed on 25,220 of the 42,765 miles of city streets and on 74,974 of the 102,677 miles of county roads, present and planned. These figures were revealed in a year-long study conducted by the Division of Highways, California Department of Public Works, in cooperation with 58 counties and 361 cities.

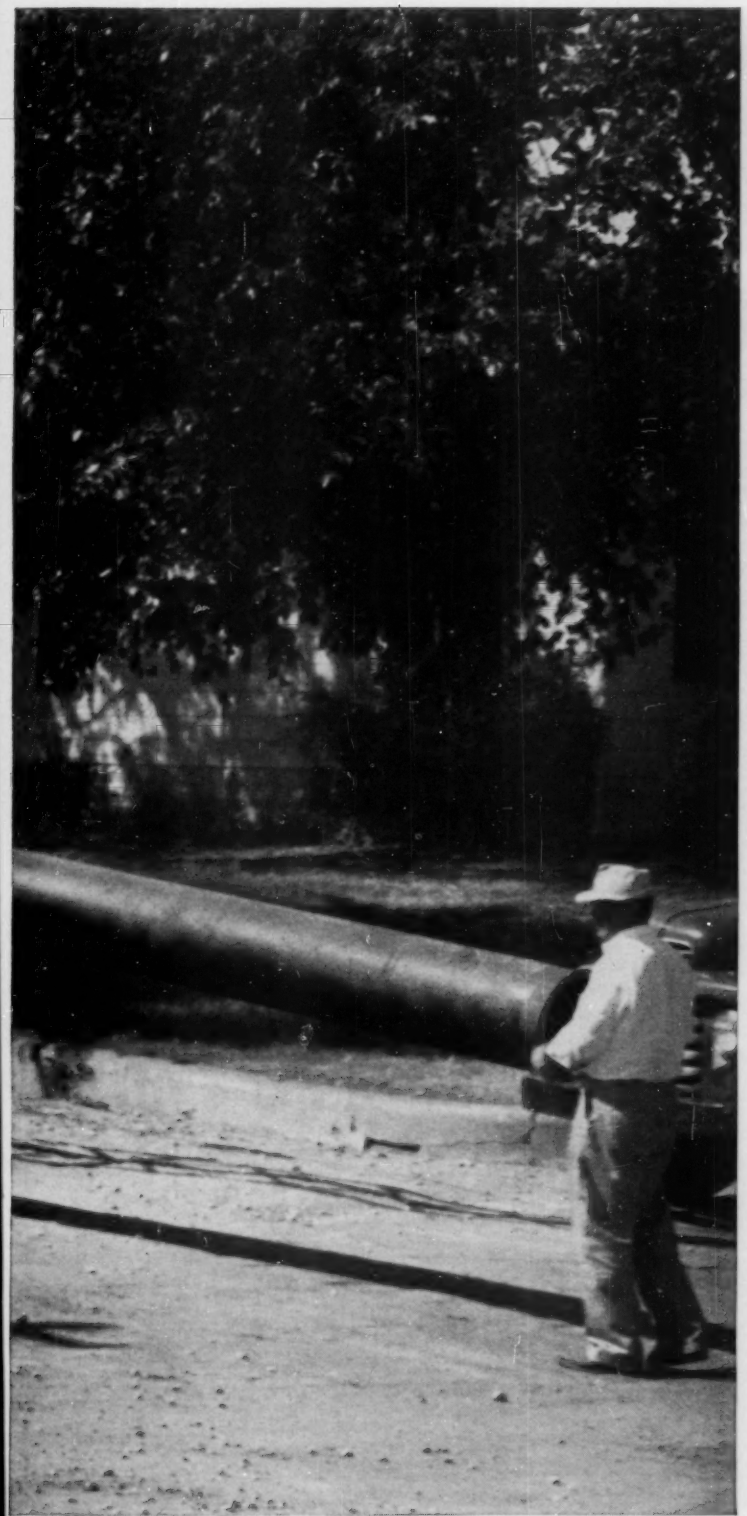
The report summarizes city street deficiencies in four categories, along with total system miles and deficient miles in the accompanying table.

The report lists city-by-city and county-by-county street and road needs for four successive five-year periods beginning in 1960 and ending in 1980. Nearly two billion dollars in improvements are needed to make the local streets and roads adequate for present-day traffic. Cost estimates are broken down to cover the right-of-way acquisition and actual construction.

The legislature authorized the study in the 1959 session so as to provide a basis for analysis of the need for accelerated financing of city street and county road improvement. The report does not recommend a specific method of financing, but points out the need for and estimated cost of the work. ◄◄

Category	Systems Miles	Deficient Miles
Major arterials	5,570.5	3,164.9
Collector streets	4,807.8	3,051.5
Local streets—existing	22,612.2	9,482.4
Local streets—future	9,774.8	9,521.6
Total	42,765.3	25,220.4





GOES TO BED WITH ITS WORKING CLOTHES ON

From the moment it is installed, cast iron pipe begins working—will deliver its full flow of water for over a century.

Here in Kansas, as part of a major water expansion program, 15,000 feet of cast iron pipe were put to bed. Ease of assembly, bottle-tight joints, and assured full-flow capacity through cement lining were important factors in the selection of cast iron pipe.

An interesting feature was the uncovering of distribution mains constructed of cast iron pipe manufactured in 1887. The pipe was in excellent condition and was put back in water service.

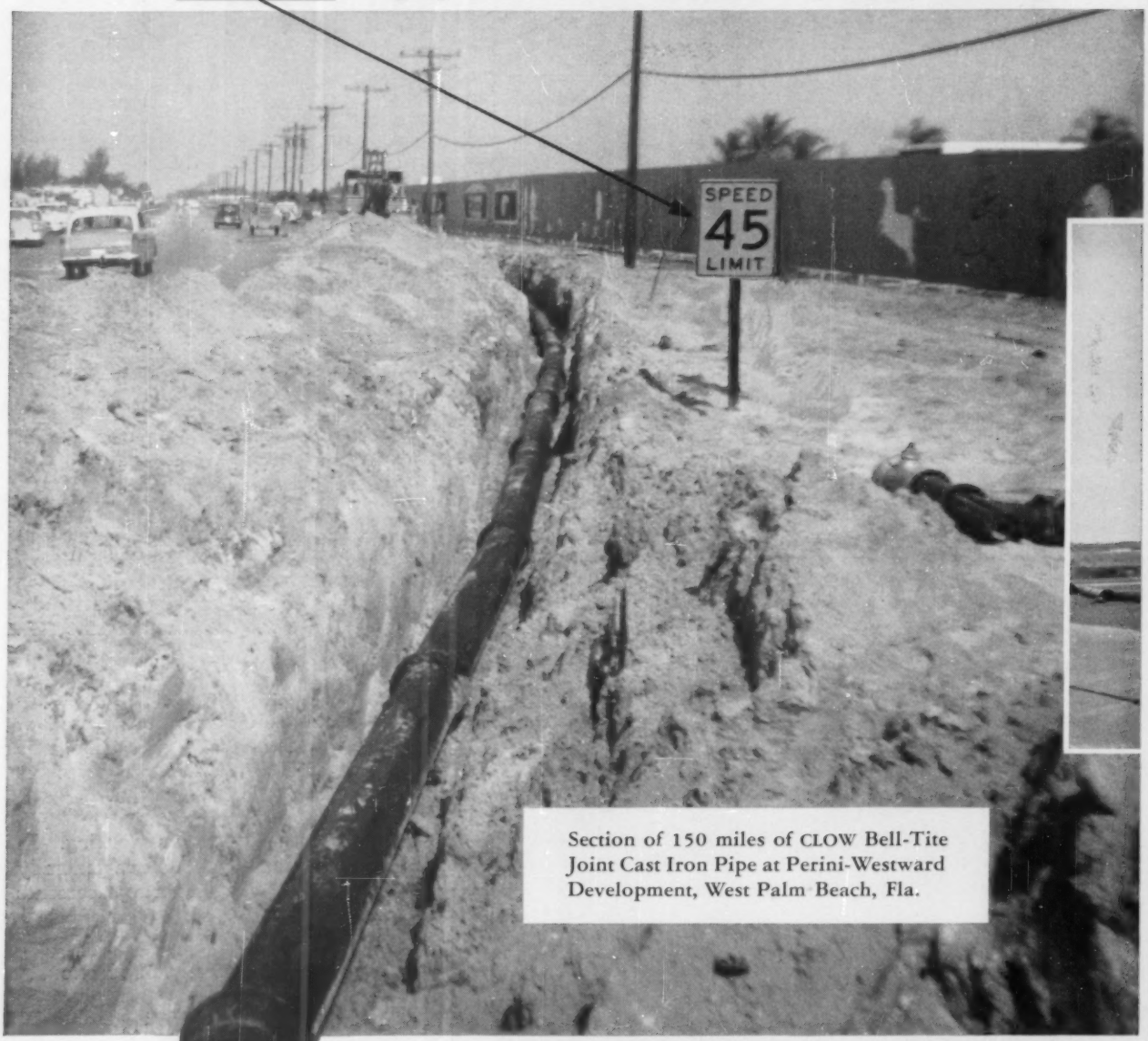
Cast iron pipe is always working. In fact, once it is installed, one can generally anticipate no major repairs or replacements for at least a century.

CAST IRON PIPE RESEARCH ASSOCIATION.
Thos. F. Wolfe, Managing Director,
3440 Prudential Plaza, Chicago 1, Illinois

CAST IRON PIPE
THE MARK OF THE 100-YEAR PIPE

CLOW

This SIGN applies to the highway



Section of 150 miles of CLOW Bell-Tite Joint Cast Iron Pipe at Perini-Westward Development, West Palm Beach, Fla.

Clow Cast Iron Pipe Plants are located at

BENSENVILLE, ILLINOIS • BIRMINGHAM, ALABAMA • COSHOCTON, OHIO

CAST IRON

PIPE

There is no limit to how fast you can lay

CLOW Bell-Tite® JOINT CAST IRON PIPE

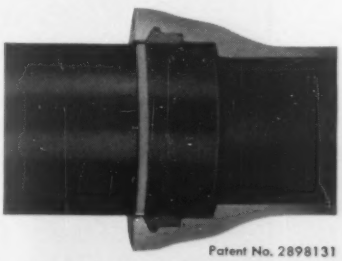
You can install CLOW Bell-Tite Joint Cast Iron Pipe as fast as you can dig a shallow trench. Photo shows the back hoe which clawed open the trench lowering a length of Clow pipe into it.

Over 150 miles of Clow Bell-Tite Joint pipe are the life lines of the water and sewage facilities for this Perini-Westward Development at West Palm Beach, Fla. Time-saving installation plus the economy of material—no accessory but a single molded rubber gasket—are important factors in this $4,000,000 waterworks project installation. One of the owners of this "City within a City" is Louis R. Perini, chairman of the board of the Milwaukee Braves and president of the Perini corporation.

CLOW Bell-Tite Joint Cast Iron Pipe can speed your installations, too. Let us tell you about its many advantages.

Clow Bell-Tite Joint Pipe saves time and money

Assembly is easy and rapid. Just wipe the joint clean, lubricate and push spigot into the bell. When yellow stripe is no longer visible, joint is bottle tight. A single rubber gasket is the only accessory. There are no bolts, no nuts, no followers, no couplings, no extras.



Patent No. 2898131

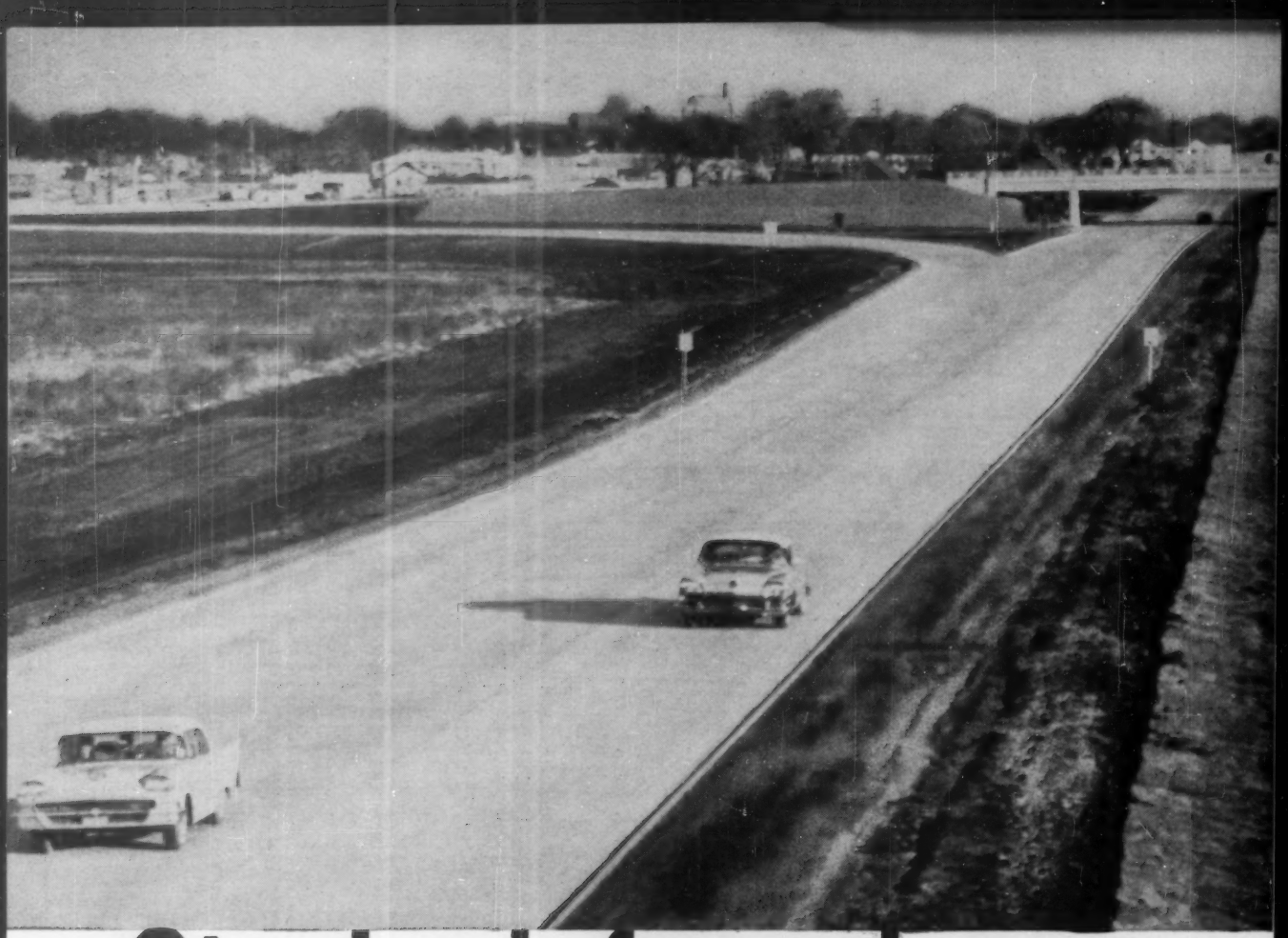
CLOW CAST IRON PIPE

JAMES B. CLOW & SONS, INC.
201-299 North Talman Avenue, Chicago 80, Illinois

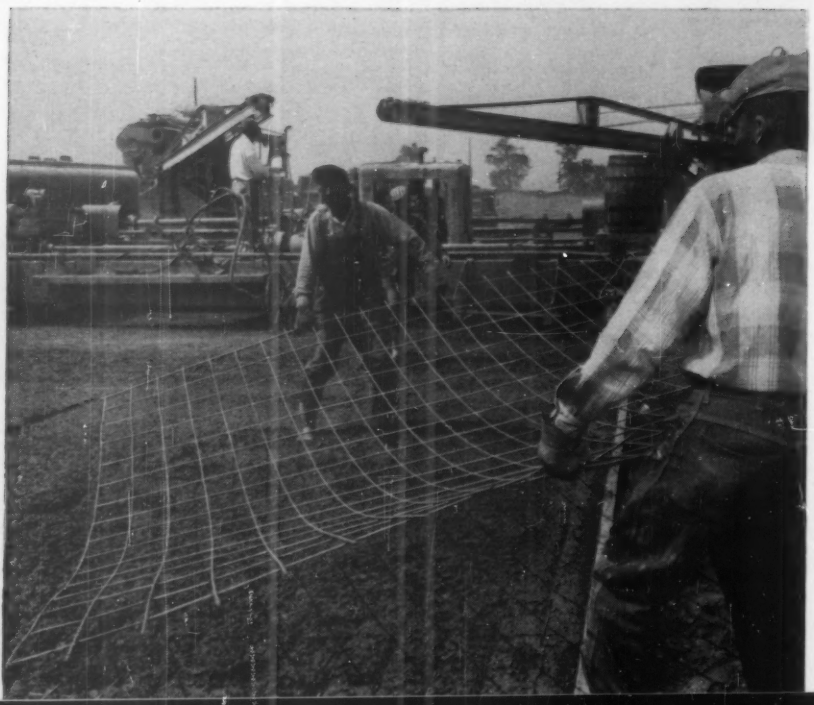
Subsidiaries:

Eddy Valve Company
Waterford, N.Y.

Iowa Valve Company
Oskaloosa, Iowa



Steel reinforced ...to stand up



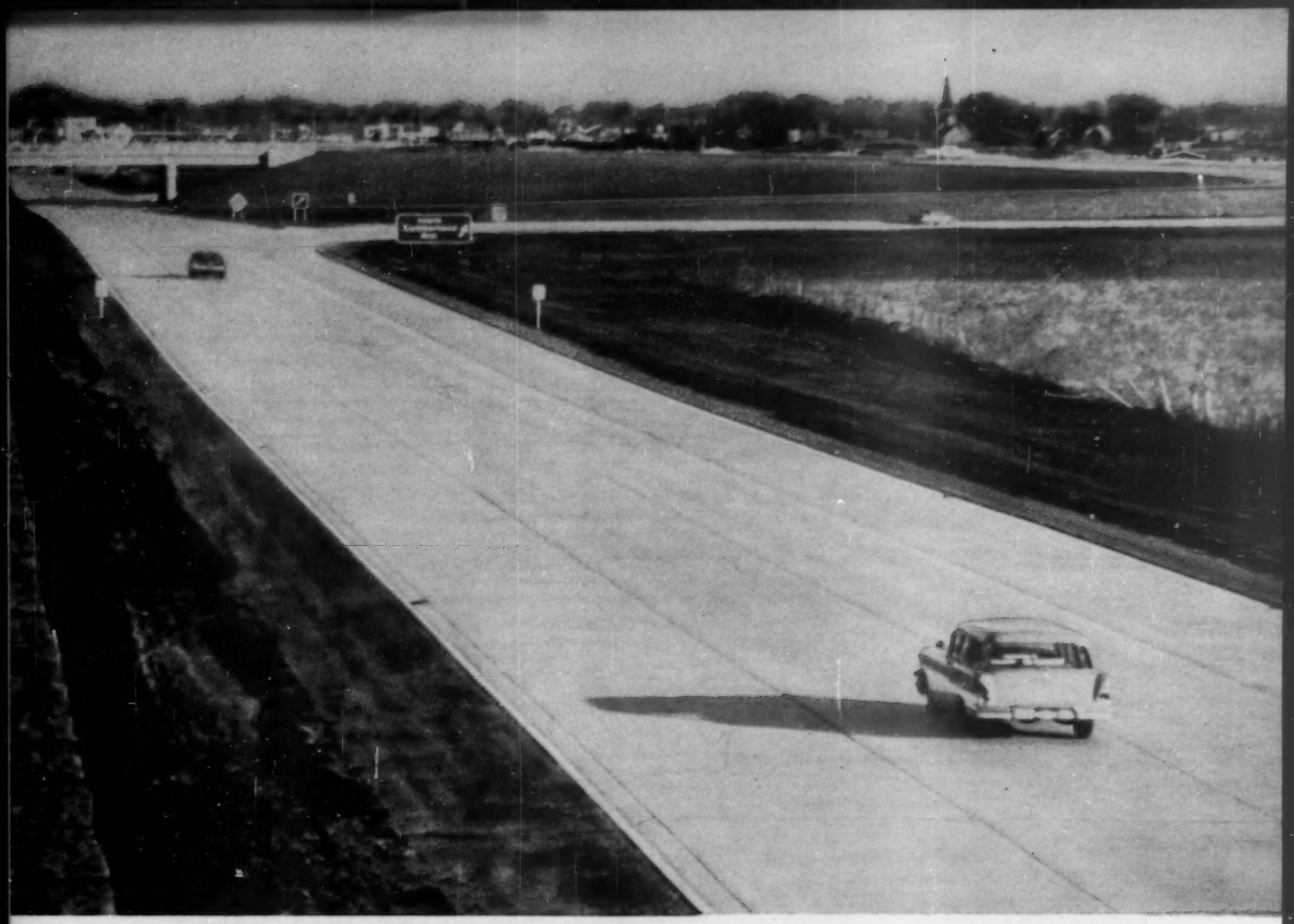
PROJECT: Portion of Northwest Expressway just west of Cumberland Avenue Interchange, Cook County, Illinois

OWNER: Cook County Department of Highways

CONTRACTORS: Arcole Midwest Corp., Evanston, Illinois

WIRE FABRIC DISTRIBUTOR: E. W. Zimmerman, Inc., Chicago, Illinois

This mark tells you
a product is made of modern,
dependable Steel.



under the hi-speed pounding of modern traffic

Cook County, Illinois has opened the first section of its new Northwest Expressway. And, like other expressways built under the authority and supervision of that county's Department of Highways, it is steel reinforced.

An anticipated daily count of 31,000 vehicles is expected on this newly opened 4½-mile section which extends from Foster & Central Avenues to the Illinois Toll Highway. This figure indicates what this already busy strip will be subjected to as the traffic load gets heavier. And it points up the importance of building into all new roads and highways the strength it will take to stand up under the almost ceaseless pounding of modern hi-speed traffic in the years ahead.

Highways reinforced with steel have a balanced design in that all edges and corners are fully protected. USS American Welded Wire Fabric accomplishes distributed load transfer and reduces stresses about 30% which accounts for the truly superior performance of reinforced concrete over non-reinforced concrete. Reinforced pavements provide a safe, smooth riding surface that lasts.

USS American Welded Wire Fabric is today stronger than ever. Minimum tensile strength is now 75,000 psi and minimum yield point is now 60,000 psi. It has reserve strength for heavier pounding and it is available in a completely machine fabricated form, ready for immediate placement. For more information, write to American Steel & Wire, 614 Superior Avenue, N. W., Cleveland 13, Ohio. *USS and American are registered trademarks*

American Steel & Wire
Division of
United States Steel

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors
Tennessee Coal & Iron Division, Fairfield, Ala., Southern Distributors
United States Steel Export Company, Distributors Abroad

EVERY PARKING METER IN THE UNITED STATES NEEDS ELECTRONIC COLLECTION SERVICE

Why? Because only Electronic Collection Service gives you an accurate, right-to-the-penny count...and provides you with vital financial information without extra cost. For the first time, you can check out your parking revenue on the basis of meter-to-meter, street-to-street, area-to-area, or lot-to-lot—without expensive audits.

Now you can get verified collection records and same-day banking of meter revenue. Prove to yourself that only Electronic Collection Service can increase your parking meter revenue, reduce labor costs and tighten your departmental efficiency.

Best of all, Electronic Collection Service works effectively on every make of meter, no matter how old or new your installations.

Take advantage of our FREE ANALYSIS of your existing parking meter collection and service problems. Get full information about our complete meter program for your city, town or village. Write today to:

BROADWAY MAINTENANCE CORP.

PARKING METER DIVISION • 22-09 BRIDGE PLAZA NORTH • LONG ISLAND CITY 1, N. Y.

(Continued from page 5)

techniques to plan and operate an airport so that it will have no detrimental effect upon residential development and that by providing a distance of five miles from the beginning of take-off roll to the airport boundary, aircraft taking off could achieve an altitude at which they would not create a community noise problem. Dulles International Airport, now under construction, incorporates this concept.

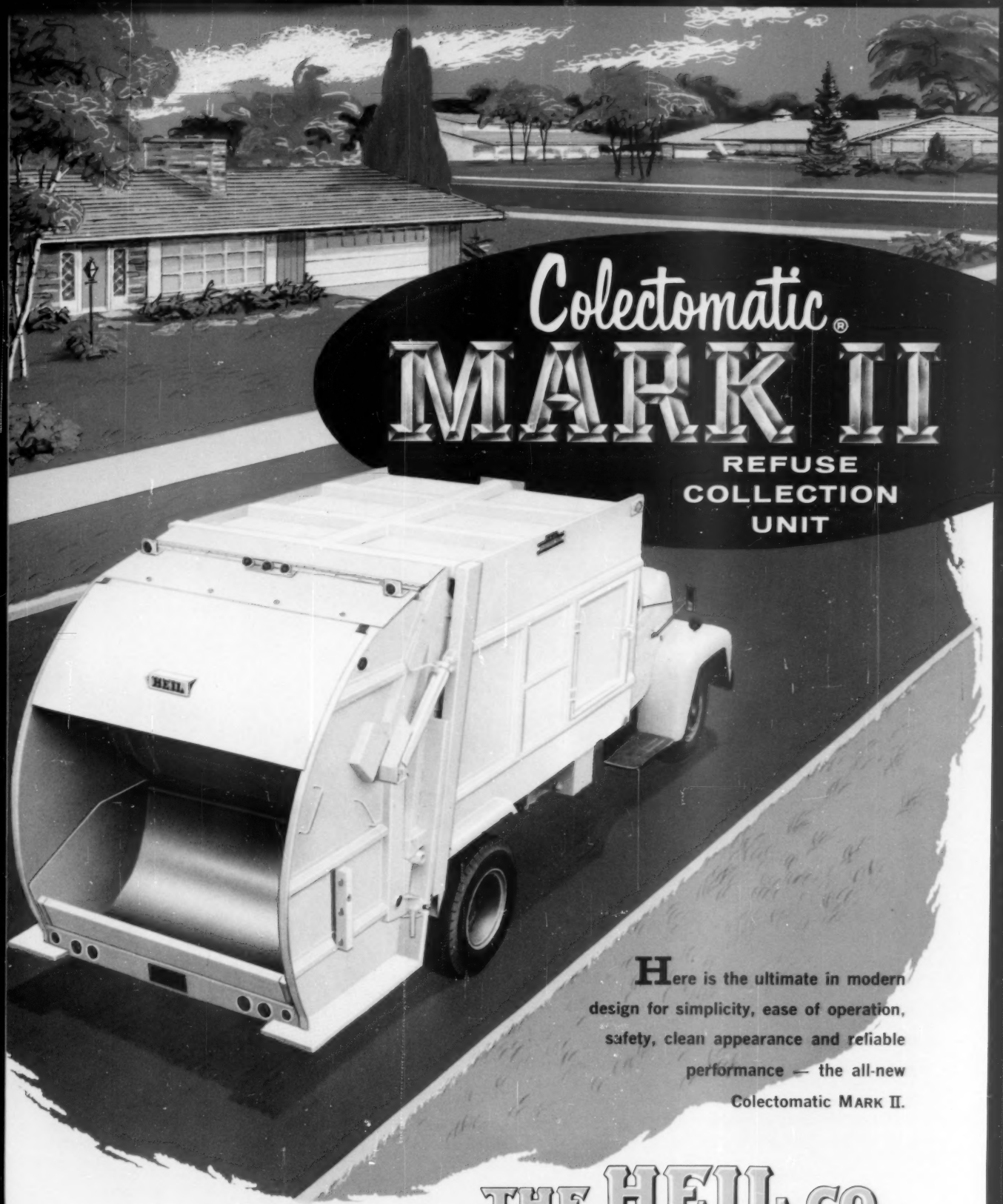
Mr. Veerling cited two recent surveys that showed that the value of properties in the immediate airport neighborhoods were not adversely affected as compared with properties far removed.

Mr. Veerling concluded by saying, "I would like to summarize by noting that: (1) the availability of air transportation and airports is essential to the continued well being of a major metropolitan area; (2) a major airport could be expected to stimulate significantly the development of the area or region in which it is located; (3) through proper planning and operation, an airport can be made compatible with the optimum development of the area; and (4) through proper regional planning such development can be orderly and desirable. ◄◄

Columbia Honors Manager

Columbia, S. C., recently paid homage to its city manager, Irving G. McNayr, in a manner generally reserved for football coaches and star baseball players. At an appreciation luncheon, the city's business and professional men presented him with a new Chrysler Windsor automobile and presented his wife with an engraved silver platter.

Mr. McNayr was appointed city manager here in 1956. Previously, he had been city manager of Springfield, Mo. A native of Townsend, Mass., he received both his A.B. and master's degrees from the University of Alabama and served as administrative officer in the Bureau of Ships in Washington during World War II. He served as public administration advisor in Bogota, Columbia, with the Institute of Inter-American Affairs for a year before going to Montgomery County, Md., where he was county manager from 1949-53 when the county received the National Municipal League's "All-America" County award. Regional vice-president of I.C.M.A., he is a personnel adviser for the International Cooperation Administration. ◄◄



Here is the ultimate in modern design for simplicity, ease of operation, safety, clean appearance and reliable performance — the all-new Colectomatic MARK II.

THE HEIL CO.

MILWAUKEE 1, WISCONSIN

BULLETIN BH-60106

this is the Colectomatic®

13, 16 and 20 cu yd capacities

BEST FOR THE ROUTE...

The MARK II loads more refuse each trip — and high-pressure, "Duo-Press" compaction can be used to put a powerful, two-way squeeze on each hopperful as it enters the body. This exclusive action compresses each load between the packer plate and the ejection panel until the body is full. Electronic pushbutton operation . . . low, wide loading sill . . . large hopper . . . complete freedom from jamming — all these advanced features add up to the fastest, most efficient refuse collection unit you've ever seen.

EJECTION CONTROLS are placed conveniently at left front of body. Operator can eject entire load swiftly, safely, completely — return to collection route minutes faster than ordinary dumping methods permit.

BEST AT THE DISPOSAL POINT...

Raise the tailgate, flip the controls, and the MARK II's ejection plate bulldozes the entire load out of the body in seconds. Positive ejection empties the unit completely without destructive shaking and jerking to loosen compressed material. Raised-body dumping is eliminated so there's no tendency for front wheels to leave the ground. Tailgate stays high, clear of refuse. Discharging at incinerators, clearance is no problem because the body stays down, out of the way of ceiling and doors.

BEST IN THE SHOP...

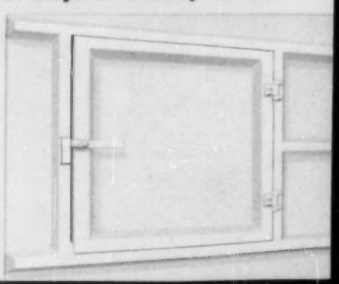
Maintenance of the MARK II couldn't be easier. Solenoid-controlled, pilot-operated hydraulic valves automatically coordinate each phase of the working cycle, keep the unit in perfect adjustment at all times. Lubrication and inspection of all components is simplified for speedy routine maintenance procedures.

BEST WHEN YOU BUY...

You save two important ways when you buy the Colectomatic MARK II. The unit can be matched properly with a truck chosen on the basis of load-bearing capacity. There's no need to consider front end weight to hold wheels on the ground during dumping. What's more, "Duo-Press" packing action provides greater compaction of compressible refuse, which often means you can purchase a *smaller* model to haul a given payload— or *fewer* units to handle a given collection schedule.

THESE OPTIONAL FEATURES MATCH THE MARK II TO YOUR NEEDS

EXTRA SIDE LOADING DOOR, identical to standard door on curb side, permits loading from left side for convenience in alleys or one-way streets.



MARK II

LOW CLEARANCE HEIGHT eliminates trouble with low entryways at incinerator or garage. Even on 20-cu-yd models, average height of body above truck frame is less than 7 ft — low enough to clear overhead structures and tree limbs likely to be encountered on typical municipal collection routes.

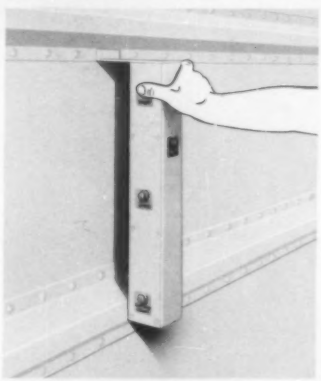
CLEARANCE LIGHTS AND REFLECTORS are furnished as standard equipment, fully meet latest I.C.C. standards.

LOW, WIDE HOPPER SILL provides for easy loading. Standard height is 5 in. below top of truck frame, may be mounted higher for special conditions. Huge opening easily accepts bulky refuse — including big drums or discarded furniture.

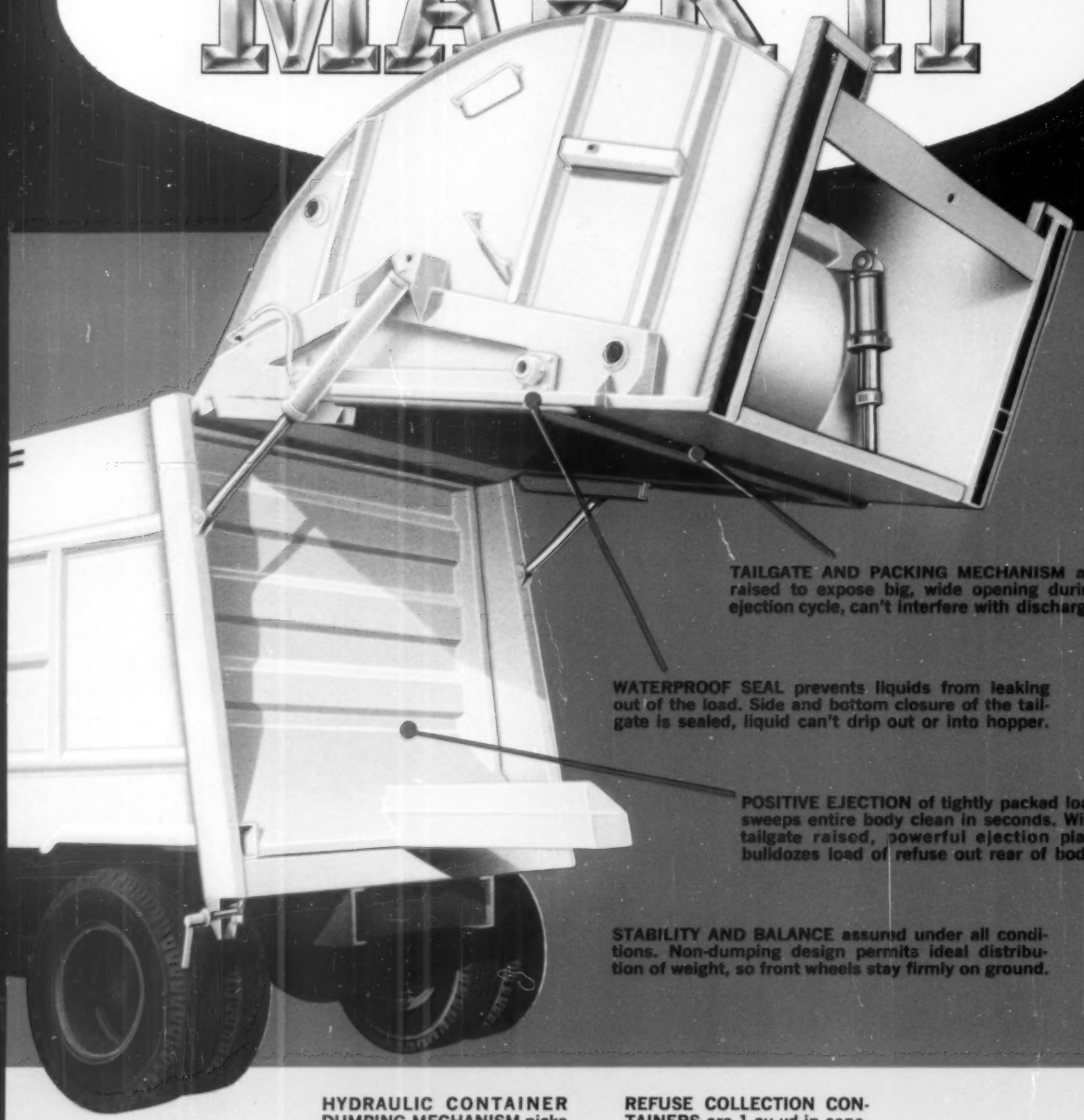
SAFE PACKING OPERATION protects crews. Exclusive packing action raises hopper above loading level before packer plate moves down. Careless operators can't get caught between packer plate and hopper.

PUSHBUTTON ELECTRONIC CONTROL

The entire packing cycle of the MARK II is pushbutton-controlled through electric solenoids, which in turn control pilot-operated valves in the hydraulic system. Packing operation may be stopped instantly with the safety stop-button, or reversed during any part of the cycle. Pushbuttons located at both sides of the loading opening give operators complete control of packing cycle. Safe, simple pushbutton operation speeds collection, reduces operator fatigue, eliminates expensive downtime for maintenance and adjustment.



MARK II



TAILGATE AND PACKING MECHANISM are raised to expose big, wide opening during ejection cycle, can't interfere with discharge.

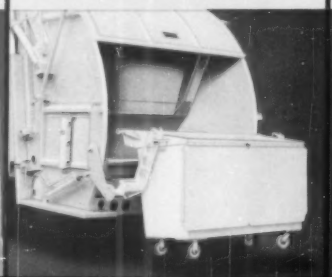
WATERPROOF SEAL prevents liquids from leaking out of the load. Side and bottom closure of the tailgate is sealed, liquid can't drip out or into hopper.

POSITIVE EJECTION of tightly packed load sweeps entire body clean in seconds. With tailgate raised, powerful ejection plate bulldozes load of refuse out rear of body.

STABILITY AND BALANCE assured under all conditions. Non-dumping design permits ideal distribution of weight, so front wheels stay firmly on ground.

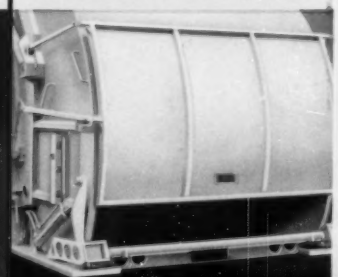
INSIDE CAB CONTROLS for load ejection permit driver to eject load at disposal point without leaving cab.

HYDRAULIC CONTAINER DUMPING MECHANISM picks up, empties, deposits all standard 1-cu-yd containers. Exclusive design allows pick-up without close "spotting." Latch and dump mechanism is controlled by pushbutton.



REFUSE COLLECTION CONTAINERS are 1-cu-yd in capacity. Hinged lids close container securely. Two fixed, two swivel wheels make maneuvering easy. Sturdily made of welded steel with attractive, sanitary-looking white finish.

AUTOMATIC REAR SAFETY DOOR lowers to cover loading opening and remains down during most of packing cycle. Door automatically opens as packing cycle is completed.

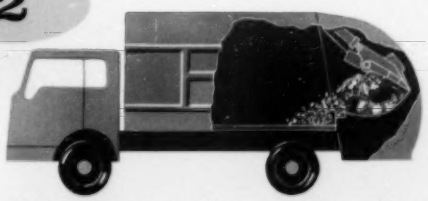


FAST, SAFE LOADING CYCLE *SPEEDS COLLECTION*

1

When hopper is full, operator pushes button to start loading cycle. Packer plate automatically moves back and upward as hopper rises. Safety door (optional) covers load opening.

2



Packer plate meets hopper at top position, starts to bulldoze refuse forward into body with rolling action that wipes hopper clean.

3

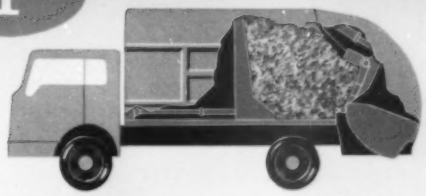
When packer plate reaches forward position in packing cycle, hopper returns to loading position. Safety door automatically moves up.

4

Hopper in loading position, the MARK II is ready for another load. Packer plate remains in forward position, holding refuse securely in body. Entire cycle is complete in 12 seconds!

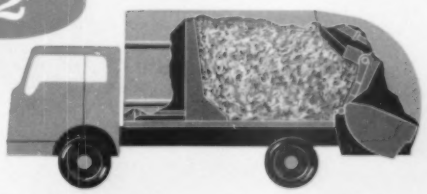
REVOLUTIONARY "Duo-Press" COMPACTION OFFERS *BIGGER LOADS*

1



At start of collection route, ejection plate can be positioned at rear of body. Packer plate then forces first loads against ejection plate.

2

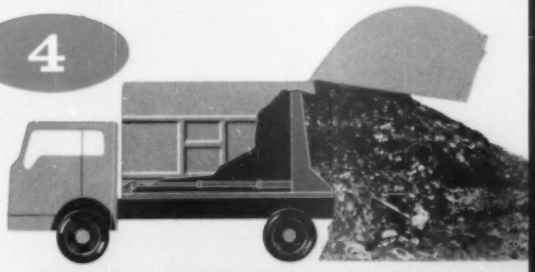


Compaction continues with each loading cycle, squeezing material between packer plate and ejection plate, until hydraulic relief valve allows ejection plate to move forward in body.

3

With body completely full, entire load is uniformly compacted between packer and ejection plates. "Duo-Press" compaction from first to final loads assures full capacity each trip.

4



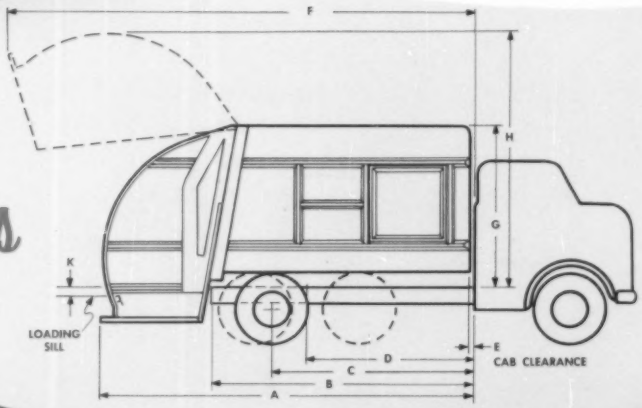
At disposal point, operator simply raises tailgate, flips ejection control—and ejection plate pushes tightly compacted load out of body.

Colectomatic® MARK II

specifications

BODY	Interior	smooth floor and sides, no obstructions
	Side loading door	35 in. x 36 in.; curb side standard, street side optional
	Maximum outside width	95¾ in.
UNLOADING MECHANISM	Ejection panel	vertically mounted; ejects load without raising body; double-acting hydraulic cylinder actuates panel
TAILGATE AND HOPPER	Hopper capacity	1½ cu yd
	Loading height	5 in. below top of frame
	Cycle time	12 seconds (normal)
	Load opening height	54 in.
	Load opening width	80 in.
CONTROLS	Packing cycle	pushbutton electronic control of hydraulic valves for packing mechanism; pushbutton signal buzzer
	Location	
	Packer controls	at rear, both sides of load opening
	Buzzer control	on panel with packer control
	Ejection control	left front of body; includes remote throttle control; optional location inside cab
	PTO control	inside cab
LIGHTS REFLECTORS		standard I.C.C., 12-volt
		standard I.C.C.
OPTIONAL FEATURES	Safety door	automatic operation during packing cycle; mechanically actuated
	Container mechanism	pushbutton-controlled, powered by twin hydraulic cylinders; handles all standard refuse containers
	Refuse containers	
	Length overall	77¼ in.
	Width outside	29¾ in.
	Height from ground	45½ in.
	Capacity	1 cu yd (21 bushels)
	Casters	2 rigid, 2 swivel wheels; 6-in. diameter x 2-in. width; rubber tires and roller bearings

dimensions



	13 cu yd	16 cu yd	20 cu yd
A—Length, cab to rear, tailgate closed	172¼ in.	189¼ in.	219¼ in.
B—Length, cab to end of body floor	119¼ in.	132¼ in.	162¼ in.
C—Cab-to-axle, single axle truck	84 in.	102 in.	120 to 132 in.
D—Cab-to-axle, tandem axle truck	—	84 in.	120 in.
E—Cab clearance	2 in.	2 in.	2 in.
F—Length, cab to rear, tailgate raised	217½ in.	234½ in.	264½ in.
G—Body height above truck frame	83 in.	83 in.	83 in.
H—Body height, tailgate raised	131 in.	131 in.	131 in.
K—Truck frame to loading sill	5 in.	5 in.	5 in.
Body width	95¾ in.	95¾ in.	95¾ in.
Approximate weight	8,100 lb.	8,400 lb.	8,900 lb.

The company reserves the right under its product improvement policy to change construction or design details and furnish equipment when so altered without reference to illustrations or specifications used herein.

THE HEIL CO.

FACTORIES: MILWAUKEE, WIS. • LANCASTER, PA. • HILLSIDE, N. J. • CLEVELAND, OHIO • MODESTO, CALIF.

Sales Offices: Hillside, N. J.; Washington, D. C.; Lancaster, Pa.; Atlanta, Ga.; Cleveland, Ohio; Chicago, Ill.; Milwaukee, Wis.; Kansas City, Mo.; Denver, Colo.; Dallas, Texas; Los Angeles, Calif.; and Seattle, Wash. Distributors in all principal cities.

10M—D&J 8-60 Litho in U. S. A.

BH-6010

Fleming Appointed Associate Editor

THE AMERICAN CITY takes pleasure in announcing that Rodney R. Fleming, author of the article "Sioux City Tackles Pollution," appearing on p. 120, has joined the staff of this magazine as Associate Editor, beginning with this issue.

Mr. Fleming has had an active career in municipal engineering work. As city engineer of Sioux City, he directed the design of a $3,000,000 interceptor sewer system, and a $2,400,000 paving program which has included a portion using the new foamed-asphalt surfacing. (See THE AMERICAN CITY, Dec. 1959, p. 88). Under his direction also, the city has rebuilt two swimming pools, improved its airports, and started an $18,000,000 flood-control program in conjunction with the Army Engineers.

Prior to his assignment at Sioux City, he was director of public works and city engineer, Owatonna, Minn.; and previous to that, city engineer, Mankato, Minn. For a short time, he was city engineer associate at North Mankato, Minn. Here he had the interesting assignment of restoring water service to the city after a disastrous flood.

Mr. Fleming is a graduate of Iowa State University in civil engineering, where he earned a master's degree and where he also served as an instructor for two years. He is a member of the American Society of Civil Engineers, the American Public Works Assn., and other professional organizations. ◄◄

California County Sets Area-Wide Sewerage Program

The Riverside (Calif.) County Planning Commission is currently developing a master plan for the collection and purification of sewage in Coachella Valley. The study area extends from the city of Banning to the Salton Sea and includes Palm Springs, Indio, Coachella, and a number of unincorporated communities between Palm Springs and Indio. Ray Spencer, president of the County Planning Commission, estimates that the population in this area will increase three-fold by 1980.

The Commission has retained the consulting firm of Koebig & Koebig, Los Angeles, to develop the plan. The same firm has been retained by the City of Corona to design and supervise construction for a North Corona sewerage project. ◄◄

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With an Allis-Chalmers utility tractor . . . you move into the stockpile, reverse and spot the load . . . quickly, smoothly. Steering wheels turn sharply . . . power steering provides the muscle. Work on uneven surfaces with good stability because the wheels are spread out and wheel base is long.

But most of all, you will like the operation of the swift, smooth SHUTTLE clutch. You'll change direction in one easy movement of the convenient lever . . . no hesitation, no delay.

Check the features that make Allis-Chalmers the low-cost machine on jobs just like yours. Mail the coupon today for complete information. It doesn't cost to find out.

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SOLD BY ALLIS-CHALMERS DEALERS EVERYWHERE

Packed with the fire-fighting power of two new Mack cab-forward pumpers and an expertly trained department, Rural Fire Protection District No. 56, Clackamas County, Oregon, is ready for any call. Recently delivered C-95 Model at right is rated at 1,000 gpm and is equipped with 500-gallon booster tank . . . two electric rewind hose reels . . . 100 amp alternator with 1,000 watt transformer . . . and no-spin differential for greater traction. Model C-85, rated at 750 gpm, has been in service for several months. Both units are powered by famed Thermodyne® 707C engines built by Mack and delivering more pumping power . . . more performance power . . . than anything in their class.

Another wide-awake fire company chooses Macks

Rural Fire Protection District 56, Clackamas County, Oregon, is justly proud of its two handsome new Mack canopy cab-forward pumpers. Since the Macks have been put in service, the district is confident that no comparable-size community in the West is more fully equipped—and more efficiently manned.

Here's why fire departments everywhere depend on Macks. *Custom engineering* . . . Mack delivers the unit that exactly meets *your* needs: cab-forward or conventional models—co-ordinated brake, rear axle ratio and chassis design—famous Mack-built components to surpass your most exacting requirements. *Dependable performance* . . . Mack fire apparatus is made to the highest standards in the industry. For sheer dependability, nothing can touch it. For sustained performance with only routine attention, nothing can match it. You can always depend on a Mack.

Talk it over with your Mack branch or distributor. He has full details on the complete line of Mack quality fire apparatus. Mack Fire Apparatus, Allentown, Pennsylvania. Mack Trucks of Canada, Ltd., Toronto, Ontario.

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FIRE APPARATUS

COMPLETE LINE OF PUMPERS—500 to 1250 GPM...SQUAD AND HOSE WAGONS...AERIALS 65′ to 146′...COMBINATION LADDER TRUCKS

It Transports Or Patrols

Oklahoma City's Police Travelall cruiser.

The International Harvester Travelalls recently placed in service by our department are proving to be a valuable aid to the Oklahoma City police operations.

They are used mainly for transportation of prisoners. However, while not actually engaged in carrying prisoners they are used as cruisers and patrol an area in the same manner as regular scout cars.

For our purpose 16-gauge steel, ¾-diamond mesh was installed inside the vans over the windows and behind the driver. A ¼-inch-thick piece of Plexiglas was mounted behind the driver to permit him to observe his prisoners and to protect him.

The trucks are equipped with power steering for easier handling.

ROY J. BERGMAN,
Chief of Police
Oklahoma City, Okla.

One Police Station for Two

A new centrally located police station will replace two old ones when the old 19th police district in Philadelphia is divided between the 6th and 9th districts. The reorganization makes it possible to reassign some 40 patrolmen and officers. Freed for other duty by this move will be one captain, four lieutenants, and eight sergeants in addition to the 40 patrolmen.

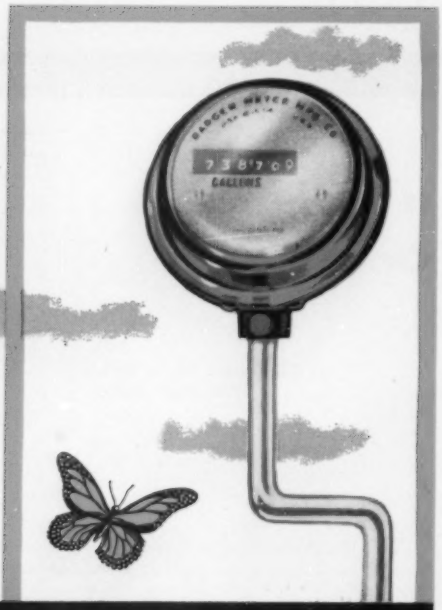
The three old districts used 24 patrol cars to cover the entire area. With the reorganization six patrol cars will be added: five of these six cars will be assigned to cover the area of the old 19th district now split between the 9th and 6th districts.

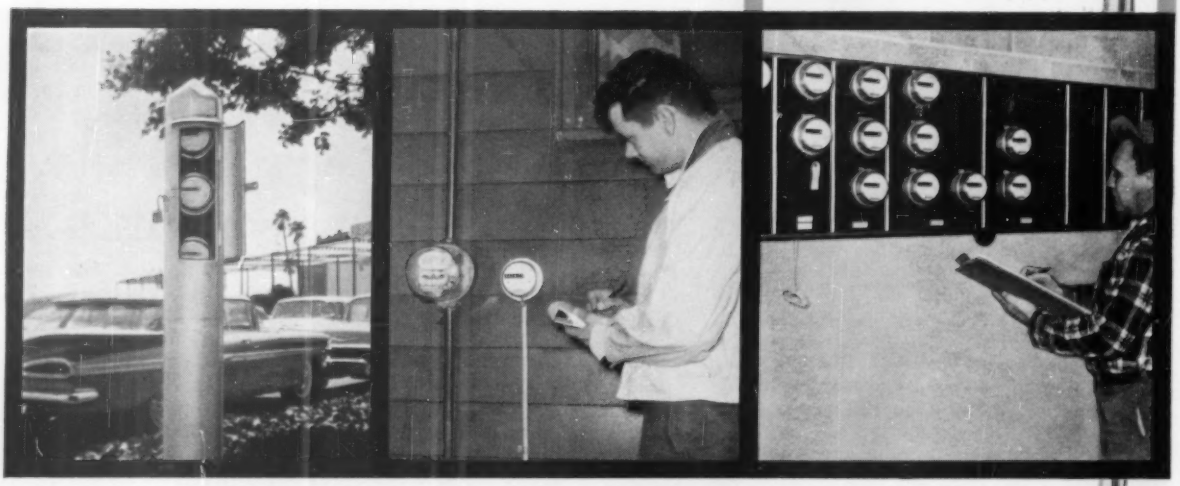
"When police work was performed by foot patrolmen, there was some advantage to having many widely scattered station houses throughout the city," Police Commissioner Thomas J. Gibbons said. "Today, with our communications and patrol cars, police protection for the citizen is just a phone call away. The freeing of policemen for actual police duty, made possible by the consolidation, will more than compensate for the loss of the neighborhood police station." ◄◄

Chain Saws Fight Harbor Fire

McCulloch Chain saws are ripping through wharf planking to enable Los Angeles fire fighters to get at the flames at the Matson Navigation Company's dock in Los Angeles harbor. The million-dollar blaze was started when a welder's torch accidentally ignited a barge loaded with creosote-soaked timbers. ◄◄

Badger *Read-o-Matic's** cost-cutting story is big as all outdoors





*Pat. applied for in U.S.A. and foreign countries.

All over the country water departments are cutting meter-reading costs and increasing efficiency with Badger Read-o-Matic outdoor meter-registers.

Accessibility is the big advantage of this self-contained register. Read-o-Matics are installed *outside*, often in convenient "reading stations" which a meterman can read quickly and easily. This system is safer, too, because it completely eliminates the dangers involved in climbing down into underground vaults and other inconvenient locations.

Install this faster, lower-cost reading system in your water department. Write for literature or call your Badger representative for a demonstration.

Badger Meter Mfg. Co.

4545 W. Brown Deer Rd.
Milwaukee 23, Wisconsin

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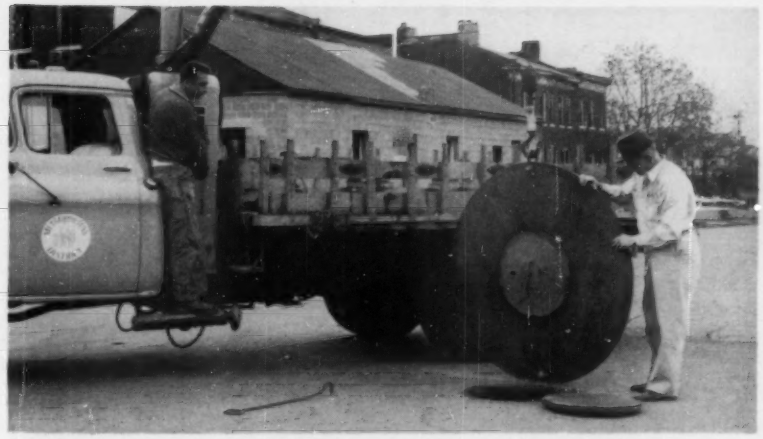
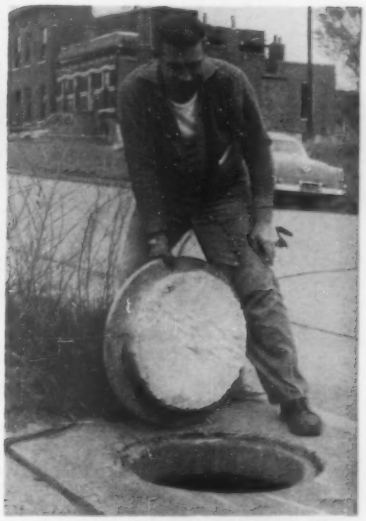


This 60-inch-diameter manhole jumper permits traffic to pass over newly raised manholes without damage to the structures and eliminates the need for barricades on busy streets.



Replacing cast-iron covers with concrete ones in unoccupied areas eliminates the heavy loss of cast-iron units by theft.

No Barricades Are Needed

Manhole jumpers devised and fabricated by the East Maintenance Division of the Metropolitan St. Louis Sewer District eliminate the need of barricades on certain jobs. They are used to protect new concrete laid by MSD when manholes are raised to new surface levels on repaved streets in the City of St. Louis. Their use is limited to major thoroughfares where barriers would create traffic tie-ups.

The jumpers consist of a ½-inch cast-iron plate 60 inches in diameter with a standard manhole cover fastened to it with a one-inch bolt. The complete unit weighs 580 pounds and the plate costs about $70 in finished form.

The jumper is lowered over the manhole opening after new concrete has been laid. When used in the center of the street where street crown must be contended with, a small amount of asphalt under the edges secures the plate and keeps it from rattling. Traffic—even heavy trucks—can then pass directly over the manhole without damaging the job. After the concrete has been set and has gained sufficient strength, the jumper is then replaced with a standard cover.

Another Idea

Concrete inlet covers, another idea of the Maintenance Department, are saving money in the demolition areas under the St. Louis Slum Clearance Program and where housing projects are underway. Up to now they have been used only on sidewalks in the areas mentioned, as temporary manhole covers.

The concrete cover was designed because of the heavy loss by theft we have experienced in these unoccupied areas. The concrete cover costs us $3.55 to manufacture as opposed to the $12 price of the cast-iron cover it replaces.

RICHARD B. PIATT
Director of Finance
Metropolitan St. Louis Sewer District
St. Louis, Mo.

Psychology Outwits Manhole-Lid Thefts

In Jefferson County, Ala. (metropolitan Birmingham), Mr. R. C. Barton, county sanitary engineer, has devised a way to outwit the troublesome "manhole-cover thief." In the past, the county has had trouble with those who steal these covers and break them up, selling them for scrap. The county has used psychology to thwart them.

Mr. Barton has arranged to place two large bolts in the cover. These are simply threaded into place to give the impression that it cannot be removed without a great deal of difficulty. The bolt also provides an easy way to remove the cover. The crew simply unscrews the bolt and then replaces it with an eyebolt.

The cover has no ventilation holes and fits closely, with only an ⅛-inch tolerance between the frame and cover so that it cannot be removed with a pick or shovel. The county now has hundreds of these covers with bolts and has no record of any being stolen since the change. ◄◄

A little final top-dressing by this Caterpillar tractor puts the finishing touches on a playfield built from a swamp by the sanitary fill method.

Landfill Restores Revolutionary War Site

A bit of American Revolution history is being restored and perpetuated in Mount Holly, N. J., through the township's sanitary landfill.

The Iron Works Park commemorates the tract of land on which stood a Revolutionary War iron works that manufactured cannon balls used by General George Washington in battles in and around Mount Holly and Trenton. Most of the park is a 22-acre swamp given to the township by the local private water company. Under the direction of R. H. van Deusen, township manager, it has been reclaimed by the sanitary-fill method, using a Caterpillar D6 Tractor with a bulldozer blade. It is now seeded, landscaped, and has some improvements.

The plan, developed by a landscape architect, included mature flowering trees and bushes from a formal garden, owned by the school board, which had to be cleared for the construction of a new school. The park also will have baseball, football, shuffleboard, tennis, basketball, a bathing beach and similar facilities. ◄◄

New Refuse Trucks Reduce Hauling Costs

With the addition of new Chevrolet trucks carrying Pak-Mor refuse bodies, Uvalde, Tex., now can make 7,000 pickups per week and save 12 trips to the disposal area in this same period.

City Manager R. W. Evans ran a test, weighing the refuse on each truck. He found that the 7,000 pickups per week collected over 63 tons of refuse. He also found that due to the Pak-Mor bodies each truck makes one less trip per day to the disposal area than was made by the old trucks. ◄◄

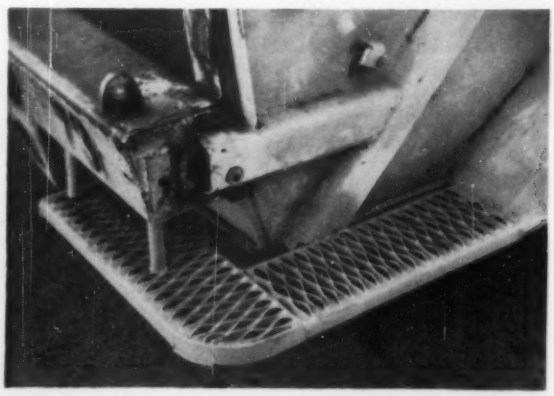
Safety for Municipal Employees

Falls rank among the leading causes of disabling injuries to City of Tacoma, Wash., employees. Most of these falls take place during routine activities rather than under conditions recognized as hazardous.

One potential danger for refuse collectors is the rear platform on the collection trucks. The men step on and off these platforms hundreds of times during a normal work week. Slippery shoes and platforms, especially in winter or during periods of rain, add to the danger of slipping and serious injury. Such injuries and the resulting loss of earning power have cost the city up to $31,000 for one case.

After trying various non-skid paints and abrasive materials with little success, we decided to replace the sheet metal platforms and running boards with expanded steel. While this is more expensive than paint or abrasive material, it does not wear out in a few days. Also, the avoidance of one accident will more than repay the investment.

J. A. Bronow, *Chief*
Utility Services Division
Public Works Department



Replacing the sheet-metal rear platforms on all refuse collection vehicles with expanded steel adds materially to the safety of collection personnel.

Solve your litter problems

at a cost your budget won't feel

New Superior waste receptacle lease program does it without tying up cash

If you're being held back in your litter control efforts by high costs, you'll want to know more about John Wood Company's Superior Metalware new Litter Control Leasing Program. With only pennies a day to amortize over several years, you can equip your area, whether an entire city or a single shopping center, with leased Superior waste receptacles to adequately handle your litter problem.

Under this plan you receive the Superior Litter Control Service —

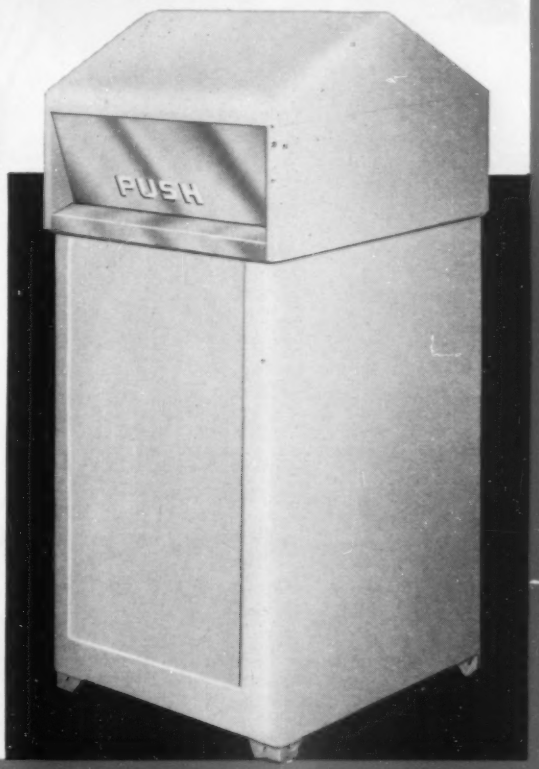
- Technical advice on how many waste receptacles you require
- Advice on placement, size, and type
- Delivery of receptacles free of charge

— and you're equipped with the finest all-purpose, indoor-outdoor waste receptacle, Superior Weathermaster. It's the only rainproof, snowproof (even fireproof) unit available.

It has "Galvanealed" steel for rust-free, long-life service; individually swinging stainless steel flaps to keep rubbish dry for easy collection; and hinged fold-back top for simple emptying.

Better Litter Control Means Better Business

For municipality, shopping center, anywhere litter is a problem, clean, litter-free streets and areas attract and hold business. People look to you for this service.



SUPERIOR

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SUPERIOR METALWARE DIVISION
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Fill in and mail for full information on the Superior Litter Control Program

Please send me complete information on the Superior Litter Control Program.

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U.S. cast iron PIPE FOR WATER, SEWERAGE AND

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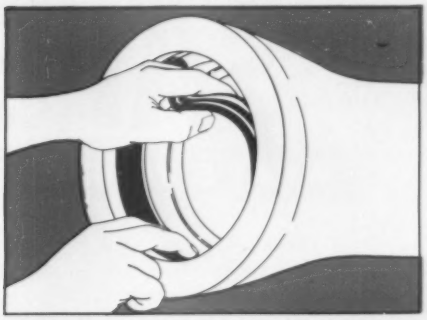
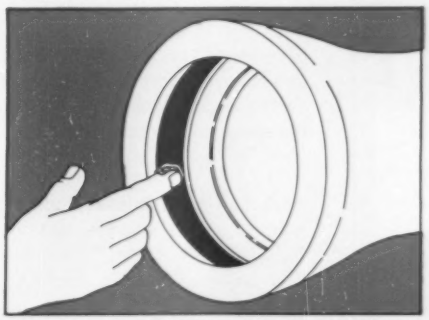
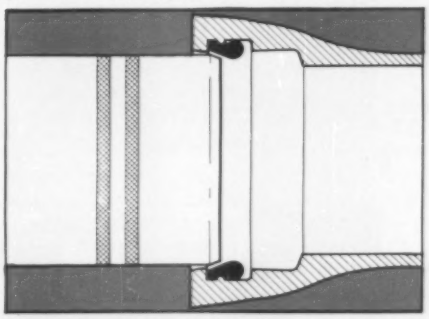
ONLY FOUR SIMPLE ACTIONS



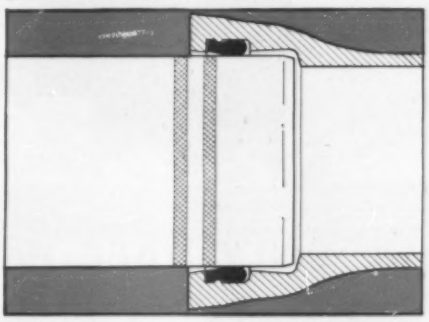
Insert gasket with groove over bead in gasket seat . . . a simple hand operation.



Wipe film of Tyton Joint® lubricant over inside of gasket. Your receiving pipe is ready.



Insert plain end of entering pipe until it touches gasket. Note two painted stripes on end.



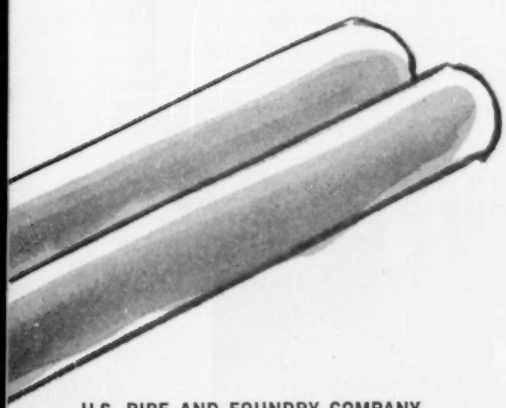
Push entering pipe until the first painted stripe disappears and the second stripe is approximately flush with bell face. The joint is sealed . . . bottle-tight, permanently! The job's done . . . . fast, efficiently, economically. Could anything be simpler?

almost as easy!

In their enthusiasm our hillbilly pals sometimes exaggerate.

Tyton Joint® pipe isn't quite as easy to install as falling off a log. But almost! One simple accessory and you're in business! No bell holes. No nuts, bolts, pots or ladles. Fewer weather delays, too. Tyton® can be installed in rain or wet trench, if need be. And even inexperienced crews can lay it.

Want more working days, less time, trouble in the trench? Tyton Joint pipe is your answer. Get the facts. Call or write today.



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INDUSTRIAL SERVICE ® CAST IRON

SAFE OR SORRY

WHAT'S YOUR CHOICE FOR WINTER ICE CONTROL?

Rock Salt is safe: Rock salt never allows ice or snow to remain and form dangerous ruts. All the snow and ice is melted away or left in condition for easy mechanical removal.

Rock Salt is clean: Rock salt leaves a dry pavement. The only thing left after rock salt does its work is a harmless white recrystallized salt. It needs no cleaning up in the spring or any other time.

Rock Salt is harmless: Rock salt does no harm to people's hands, clothing, shoes or rugs. It does not affect in any way materials such as wood, rubber, leather or plastics.

Rock Salt is economical: A truckload of rock salt goes a long way; covers five times more mileage than the same truckload of abrasives—speeds road safety, saving money and time. And rock salt does not have to be spread completely over the entire road surface.

Abrasives are dangerous: Abrasives just lie there . . . actually retard melting by forming a crust over snow and ice. They never remove ice or snow . . . and they leave dangerous ruts.

Abrasives are dirty: When sun finally melts pavements clear, abrasives leave a residue which eventually dries to become clouds of dust and sewer-clogging bulk. Abrasives cause expensive spring cleanup of gutters, catch basins, storm sewers.

Abrasives are damaging: They chip paint and chrome, exposing base metal to corrosion. Tracked into buildings, they injure every kind of floor. Abrasives are hard on yards and spreading equipment, too.

Abrasives don't go far: They must be spread many times in one storm because just ¼ inch of snow will make them ineffective. Abrasives must completely cover a road—missed areas have no protection. Frequent reloading slows ice control operations.

THE ONLY SAFE PAVEMENT IS A BARE PAVEMENT!

INTERNATIONAL STERLING SALT SALT COMPANY

"A STEP AHEAD IN SALT TECHNOLOGY"

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Philipsburg's trailer-mounted vacuum leaf loader allows three men to do the work of ten using manual loading methods.

Leaf Collection for 70% Less

For the last three years Philipsburg, Pa., with a population of 3,700, has saved over $1,100 each year on its leaf-collection program—with cleaner streets as a bonus. This the borough accomplished by substituting a Tarco "Litter-Getter" for hand labor. Now three men do the work of ten.

In figuring up the savings, Kale Z. McMasters, chairman of the Borough Council's street committee, allows for the same length of time to do the job—five weeks. The vacuum-type leaf collector could reduce this time but nature refuses to cooperate. Maple leaves start dropping in late September but the oaks refuse to drop their leaves until November. Thus the comparative figures are as follows:

Ten men per day, four days per week, five weeks at $1 per hour—$1,600 total labor cost under the old system. Under the new system labor cost is only $480 for three men per day, four days per week, for five weeks. Thus the labor saving amounts to $1,120. Gasoline for the 30-hp motor used to drive the leaf collector is minor, and the truck is necessary in both systems. Actually, fewer trips to the disposal site by the truck now that a vacuum loader is used (it shreds the leaves before depositing them in the truck) compensates for the gas used by the loader.

The three-man crew consists of the truck driver, the loader operator, and one man to rake the leaves to the edge of the street for faster pick-up. ◄◄

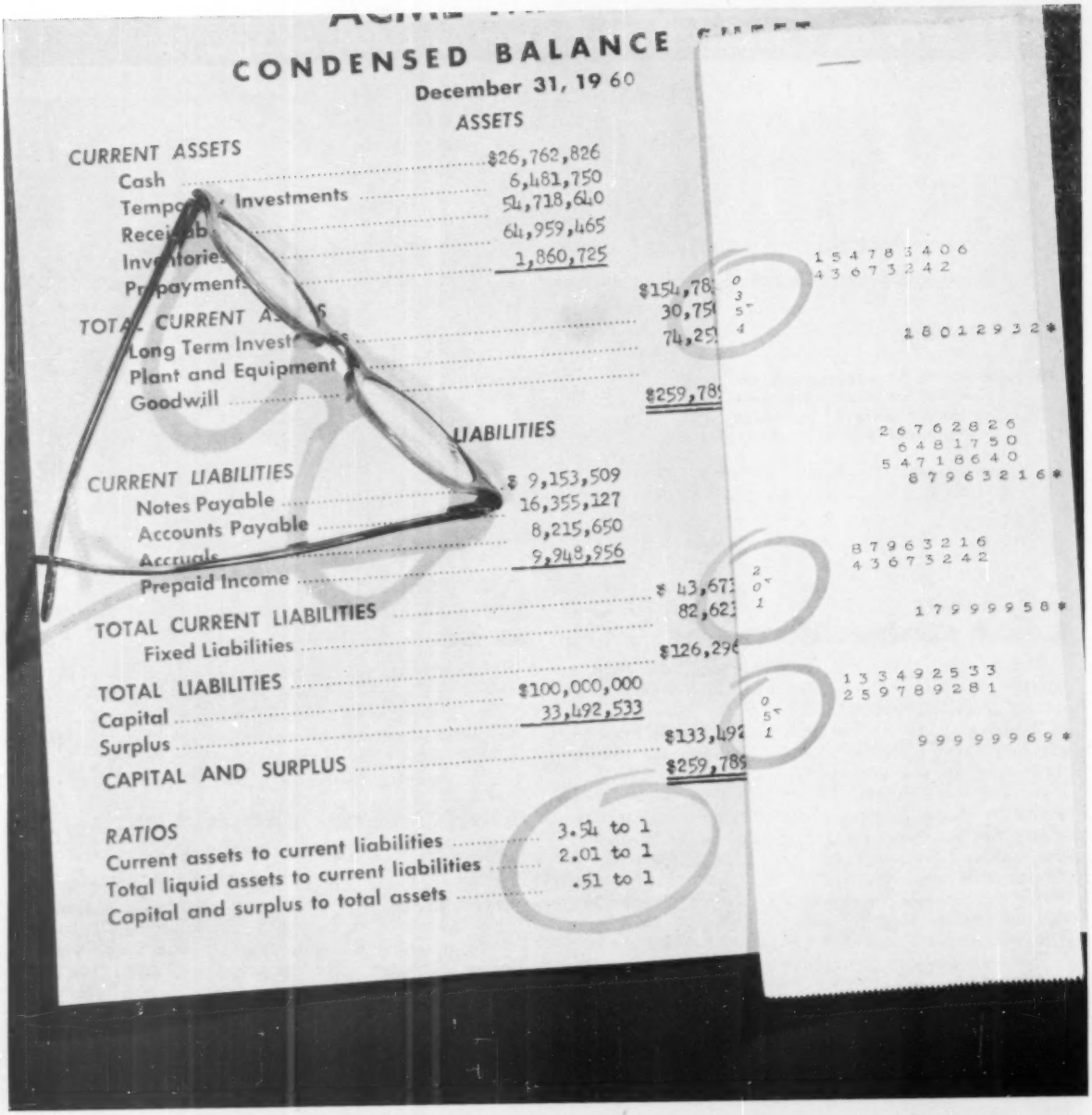
Salt Alone Cleans Mount Holly Streets

Salt alone is able to keep Mount Holly's streets free from snow and ice under almost all conditions. The township's manager, R. H. van Deusen, has to send plows out no more than twice a year. To remove the snow from the business district, he hires trucks, loaders and men so that regular men and equipment can concentrate on residential areas.

The township obtains salt by truck directly from mines in western New York or Pennsylvania for $1.17 per cwt, delivered in 100-pound bags. The snow crews use about 20 tons of salt per winter, applying it with a Tarco "Scotchman" spreader attached to a dump-truck tailgate. ◄◄

No Hand-Labor Needed

Street sanitation is thoroughly mechanized in Edina, Minn. An operator on a big Wayne power sweeper does the cleaning, and a truck operator with a Loadall front-end truck loader picks up the collected street dirt. The village manager, Warren C. Hyde, now has two mechanical sweepers and is aiming at a weekly sweeping program throughout the community. ◄◄



Tape on a report!

Convincing way to substantiate facts with clearly printed proof

The exclusive control key on the Remington Rand "99" Calculator makes it possible. It eliminates confusing figures, makes operation simpler. Result: a printed tape with answers anyone can understand. Another outstanding development from Remington Rand . . . pioneer of the electronic computer and other leading machines for business. For complete information, call your nearest Remington Rand office or write: Room 110-AC, Remington Rand, 315 Park Ave. South, N.Y. 10.

Remington Rand
DIVISION OF SPERRY RAND CORPORATION

This square area extending into St. Andrew's Bay shows the major part of the construction at Panama City, Fla. On the right is a 3,000-seat auditorium. To the left is the new civic center. The marina in the foreground provides berths for 24 yachts and 450 small boats. Between the two berthing areas is the administration building and a shopping center. Parking space is provided for 1,600 cars.

A Marina Civic Center

Nature endowed Panama City, Fla., with ideal weather, excellent beaches, clean water and abundant fish. It is located on a busy and thriving pleasure-boat route on well-protected St. Andrew's bay. It has a fine large hotel and many motels, yet it was not attracting its share of visitors.

To correct this the city council and Ernest E. Watkins, the city manager, did not have to look far. Docking facilities which would entice pleasure boats to stop were a primary need. To provide for indoor recreation a new city auditorium was mandatory. Other facilities to provide for the needs of visitors would also be needed. In addition the city hall was old and inefficient and would also need to be replaced.

When plans were complete they included two marinas, a civic center, an auditorium, parking and diverse other facilities costing a total of $7 million. The project was completed in May 1960.

The major part of the construction adjoins the downtown section on "made" land extending into the bay. Here is located the city hall, a 3,000-seat auditorium, 20 shops, a two-story marina administration office which contains a restaurant, cocktail lounge, another boatsman's lounge. The larger of the two marinas extends out into the bay from these facilities in an H-shaped arrangement which has parallel berthing for yachts and moorings for 450 small boats with electricity and water connections at each berth and a public telephone at the head of each catwalk. Parking is provided for 1,600 cars.

The other marina is two miles west and provides berths for 150 boats, a restaurant and concessions.

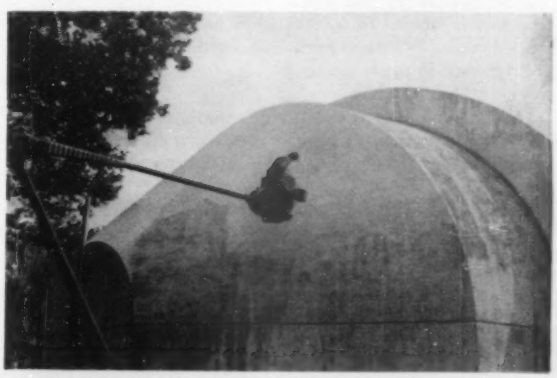
To provide mooring for the small boats the city used 35-foot southern pine, pressure-treated with creosote in the Pensacola plant of the American Creosote Works. The decking was pressure-treated with Wolman salts to a net dry retention of 0.35 of a pound per cubic foot.

Panama City now has the largest marina on the Intercoastal Canal from Port St. Joe, Fla., to Galveston, Tex., and is one of the most complete and modern in the South. ◄◄

Handy for Painting Band Shells

Recently, the Bureau of Parks, Dayton, Ohio, was handed the assignment of painting the municipal band shell. When it became obvious that scaffolding to do the work would be a problem because of the sloping portion of the shell, Mr. R. Miller, City Forester, volunteered the use of his Mobile Aerial Towers hydraulic Hi-Ranger truck-mounted lift. This has a 40-foot reach and a turning radius of 370°. Using it, the men were able to paint the sloping portion of the shell in two days.

The unit, generally used for tree pruning, has completed many other unusual assignments handily. It has been used to paint flag poles, replace flag-pole ropes, to take pictures of group gatherings, to replace light bulbs at the bandshell and tennis courts, and to install Christmas decorations. ◄◄



What normally would have been a tough painting assignment was no trouble at all for a painter in this truck-mounted lift.

Largest Prestressed Tanks

The new storage reservoirs in Springfield will establish a record in prestressed concrete construction.

The world's two largest prestressed concrete tanks are now being constructed to supplement existing water-storage facilities at Springfield, Mass. The cylindrical tanks measure 320 feet in diameter by 28 feet high. Each tank will hold 15½ million gallons of water. Floor slabs are five inches thick, walls 18 inches and the column-supported roofs 9 inches.

The prestressed concrete walls are wound with some 400 miles of prestressing wires to withstand the lateral forces which will be exerted by the water when the tanks are in service.

Prestressing by the Preload Company, New York City, comprises more than 1,000 wraps of wire applied by a self-propelled wire-winding machine suspended along the sides of the tanks from a carriage that rode around the tops of the walls.

For Better Water-Meter Settings

While much attention is paid to the selection of water meters, the value of satisfactory meter housings and accessories is seldom considered. Despite this fact, there is sound logic in considering meter and setting as a unit. Although a meter will register even if set in the line any old way, it will not be a good investment indefinitely unless it is well protected, easily readable and available for quick and trouble-free changing.

For best results, every meter should be set so that it is:

- **In a position to register all the water delivered**
- **Accessible to the meter reader and service man**
- **Not a hazard to the customer or public**
- **Reasonably well protected against frost, mechanical tampering and damage**

The choice between inside and outside settings may be clear cut—or may require careful consideration of the advantages and disadvantages of the two types.

Basic advantages of outside meters include:

- **Location at point of delivery, thereby recording leaks in customer's line. This makes for clear-cut responsibility as to maintenance of service piping.**
- **Readings made possible without entrance to customers home. No call-backs.**
- **Quicker readings under normal conditions.**
- **Safer from tampering, mechanical injury or hot water damage.**

Disadvantages include:

- **Necessity for frost protection in cold climates.**
- **Slower and more difficult readings in periods of heavy snow.**
- **Possibility of greater maintenance expense.**

Inside settings also have advantages and disadvantages. Advantages are:

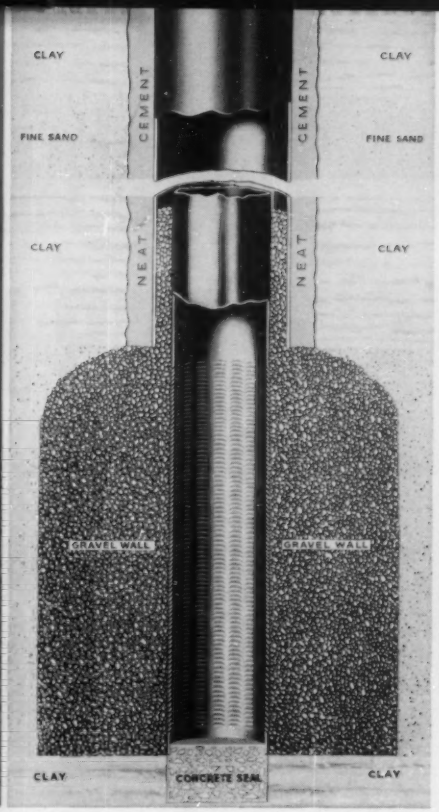
- **Lower initial cost in most cases.**
- **Quick readings during periods of snow. Automatic frost protection in most cases.**
- **Opportunity to contact the customer via the meter reader-public relations.**

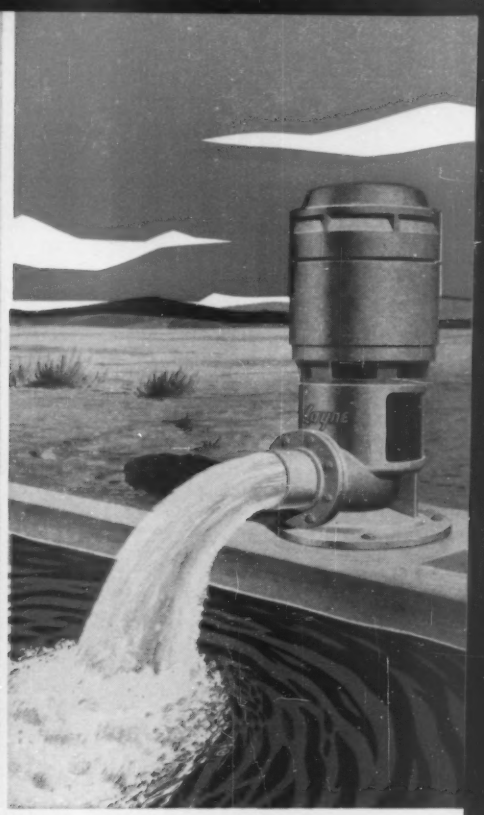
Disadvantages:

- **Call backs or estimate readings numerous because customer may not be home.**
- **Does not record leakage in service line.**
- **Subject to tampering and hot-water damage.**

Meter location is only part of the answer to a good setting. Once the location has been established attention should be given to such items as meter position, protection and accessibility. Housing and accessories are commercially available for better meter settings under practically all conditions. ◄◄

This material was abstracted from the booklet "The Engineering of Water Meter Settings," by the Ford Meter Box Company, Wabash, Ind.





WATER WATER WATER

With A Layne Drilled Well Layne knows where the water-bearing formations are located. They have been drilling wells for over 75 years. This experience comes from searching and researching water aquifers. Knowing *where* to drill is half of the success—knowing *how* is the other half. In drilling a straight well experience counts—and you can count on Layne. Layne specializes in water well drilling. To get a good start for a water supply—you need a good well. You get a good, producing well when you specify a Layne drilled well. *Bulletin No. 100*

With A Layne Gravel Wall Well This technique and resulting arrangement of the new 134 Shutter Screen and gravel (shown here) permits the free flow of water into the well and affords the following advantages: larger shutter screen openings, reduced friction, reduced draw down and pumping head—thereby reducing pumping costs, increased specific capacity and more effective retention of native sands. Cemented wells are installed if indicated, and result in greater purity of supply as well as increased life of the well. *Bulletin No. 900*

With A Layne Vertical Turbine Pump Whatever the pumping requirement, there's a Layne pump to meet any pumping conditions. Layne Vertical Turbine Pumps come in a wide range of sizes and capacities, delivering 30 to 20,000 GPM and requiring from 4 to 42 inch well casings. The complete line of Layne Pumps include: Deep Well Vertical Turbine (oil or water lubricated), Short Coupled Vertical Turbine, Propeller, Mixed Flow, Fire Pumps and Volatile Liquids Pumps, Regular and "In-Line" Submersible. *Bulletins No. 200 (oil) 201 (water)*

LAYNE OFFERS COMPLETE WATER SERVICE: Initial surveys • explorations • recommendations • site selection foundation and soil-sampling • well drilling • well casing and screen • pump design, manufacture and installation construction of water systems • maintenance and service • chemical treatment of water wells • water treatment—all backed by Layne Research. Layne services do not replace, but coordinate with the services of consulting, plant and city engineers.

Layne SINCE 1882 — WORLD'S LARGEST WATER DEVELOPERS

LAYNE & BOWLER, INC., MEMPHIS

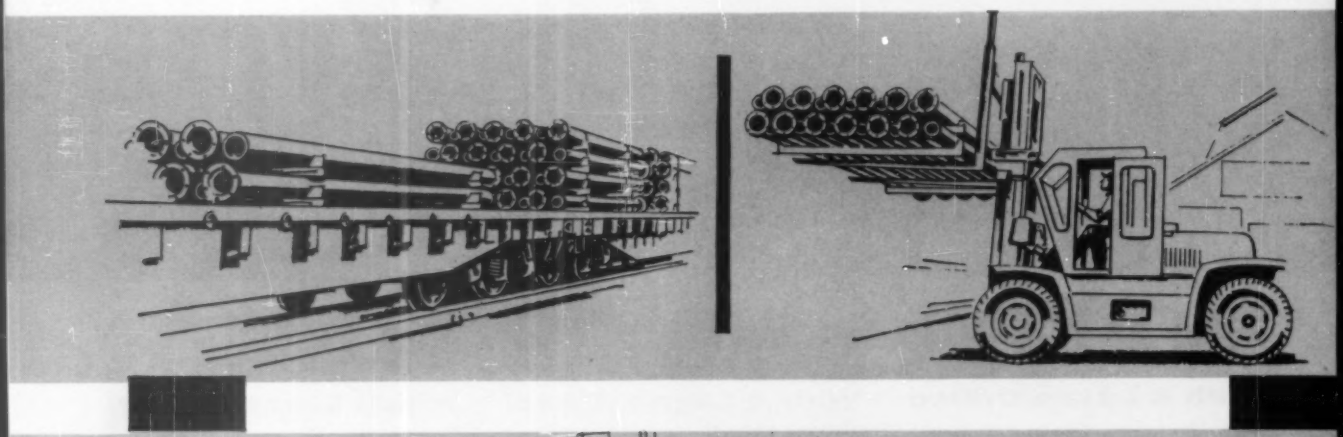
Offices and Factory—Memphis 8, Tenn.

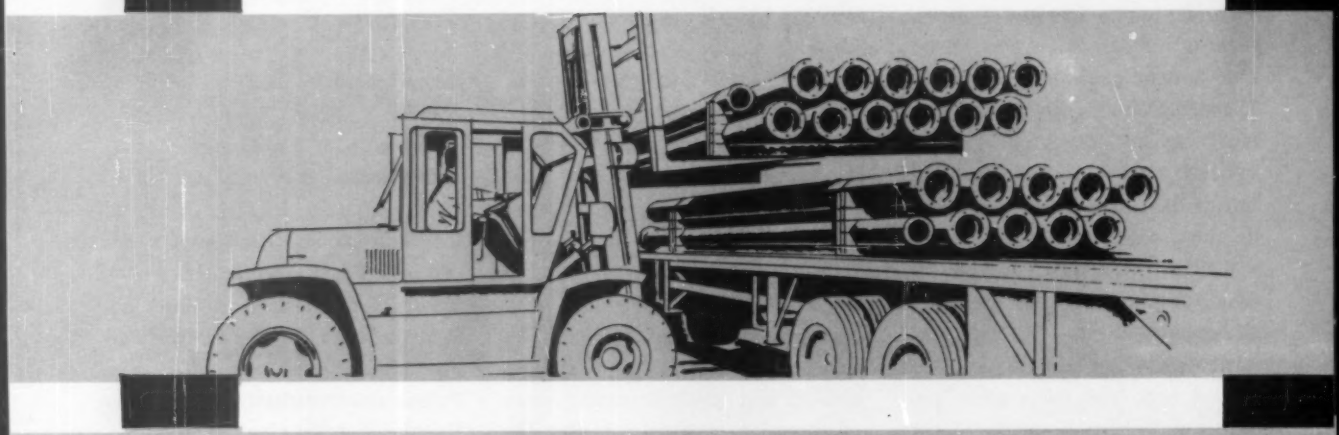
LAYNE ASSOCIATE COMPANIES THROUGHOUT THE WORLD

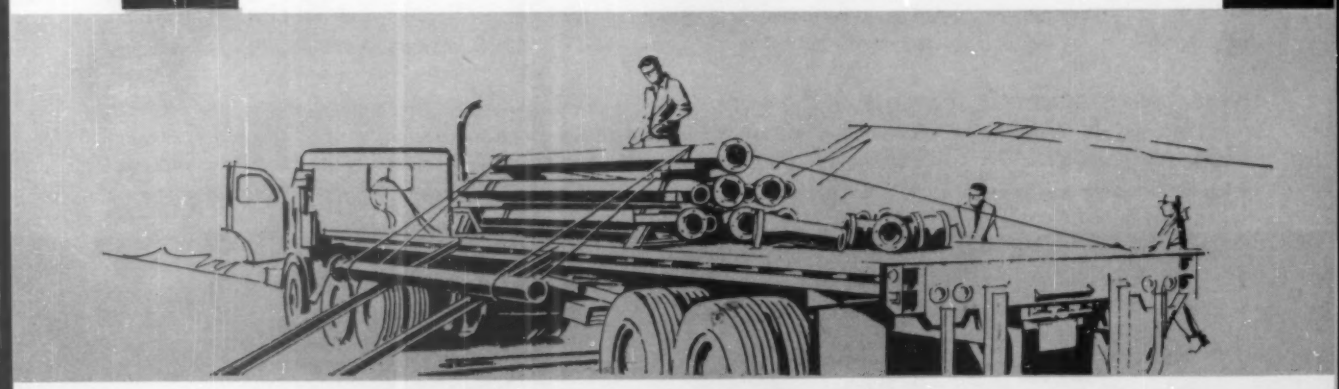
Sales Representatives in Major Cities

GRIFFIN-20'S PALLETIZING LOWERS YOUR HANDLING

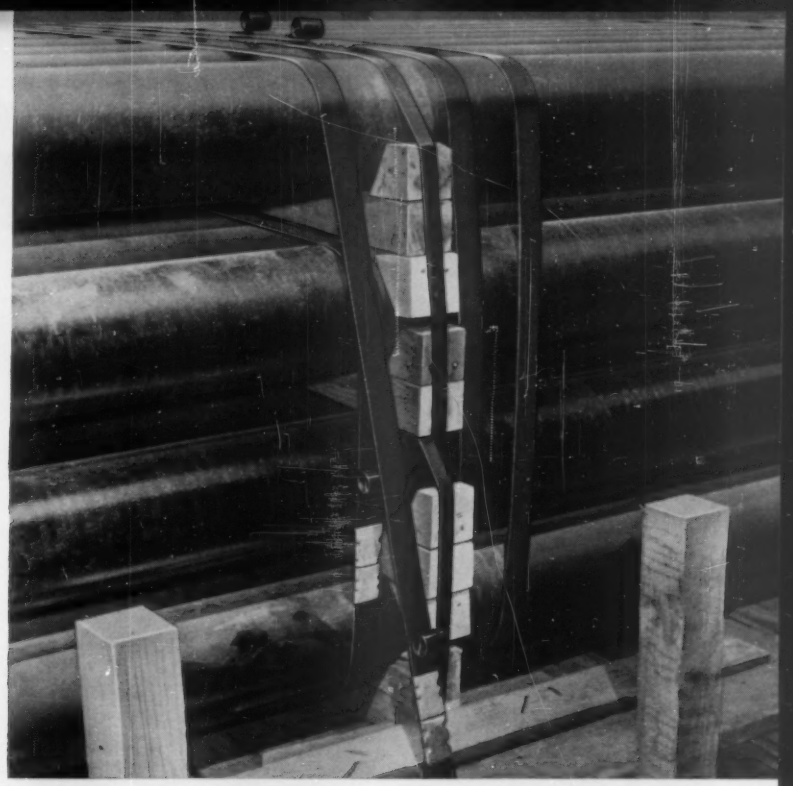
SAVES TIME...REDUCES EFFORT!







Pallets can be used on *flat cars or flat-bed trailers.* Each pallet is banded by itself. Two pallets are banded together. The composite unit is then banded to the flat car or chained to the trailer bed. The pipe shipment moves safely as a unit.



COSTS!

UNIT UNLOADING

● A fork-lift truck can quickly and easily unload and store a carload of pipe in four "lifts." Unload it on the ground, or directly on your flat-bed . . . whichever is most convenient for you.

EASY HANDLING

● Pallets are specifically designed for multiple handling . . . and will fit either cars or trailers. Subsequent movement is fast, safe, and simple. Palletizing materially reduces both time and effort.

INDIVIDUAL UNLOADING

● Pipe can be unloaded individually off the side of either a flat-bed car or flat-bed trailer, by using skids. The overhead crane normally required for gondola unloading is no longer necessary.

Only Griffin-20 offers you so much!*

Palletizing reduces hidden handling costs . . . is less expensive to you and more convenient. Because of Griffin's unique method of loading, pallets are rugged enough to withstand *multiple handling.* Pallets can be stored where most convenient, for movement to your job site. This saves on labor in unloading, and in subsequent reloading of pipe onto flat-bed trailers for transportation to installation sites. These economies are in addition to more economical installation costs due to Griffin-20's modern 20-foot length which means 10% fewer joints. The economies of palletizing are evident in the following tabulation of what constitutes a pallet.

SIZE	PIECES	WEIGHT
4"	32	5 tons
6"	24	6½ tons
8"	18	7¼ tons
10"	14	6½ tons
12"	12	7¾ tons

If you have a pipe handling or storage problem, consult us.

GRIFFIN PIPE DIVISION

Griffin Wheel Company · Council Bluffs, Iowa

SALES OFFICES . . .

Chicago—SAcramento 2-6200, 445 N. Sacramento Blvd. . . . Marvin E. Simpson, *Dist. Mgr.*

Council Bluffs—322-6641, 2601 Ninth Avenue . . . . . John L. Larson, *Sales Rep.*

Denver—West 5-2427, 1400 W. Evans Avenue . . . . . John M. Masterson, *Dist. Mgr.*

Kansas City—DRexel 1-5690, 1134 S. 12th Street . . . . . Thomas M. McGinley, *Sales Rep.*

St. Paul—Prospect 6-1521, 941 Johnson Parkway . . . . . William R. Colton, *Dist. Mgr.*

*THE TRADEMARK "GRIFFIN-20" IS THE PROPERTY OF GRIFFIN WHEEL COMPANY

(2462)

Factory-Built Sewage Pumping Stations are clean, easy to maintain and trouble free . . . specially when Smith & Loveless quality is built into them. No detail is overlooked to make Smith & Loveless Lift Stations as automatic, efficient and dependable as possible.

Smith & Loveless Stations are economical to install and save you money over the "long run" by combining dependability of operation with minimum maintenance. Over 1,500 installations prove it!

If you have a sewage "lifting problem" in your project, write for our complete engineering data manual. Address: Department 10.

Smith & Loveless

S&L DIVISION-UNION TANK CAR COMPANY P. O. BOX 8884 • KANSAS CITY 15, MISSOURI PLANT: LENEXA, KANSAS

For the cost of a powered aerial ladder, your men go aloft safely in this NEW PITMAN PELICAN™

Now your crewmen can work aloft with assurance of complete safety—they simply step into the Pelican's fiberglass bucket, press the easy-to-use controls, and sweep aloft in seconds! The rigid, non-conductive fiberglass boom stays put without "creep," yet changes location instantly, with finger-tip control and exact positioning.

Lightweight fiberglass bucket levels itself automatically, has a full 300 lb. capacity. Designed for use without outriggers. Boom revolves 360° in either direction, elevates to 75°, extends to full length simultaneously. Available in 28', 32' and 36' ground-to-bucket heights; easily installed on most popular-sized trucks.

The Pelican costs even less—in initial investment and maintenance—than many old-fashioned powered aerial ladders. You owe it to yourself to get the facts!

PITMAN MANUFACTURING COMPANY

12872 Pitman Road • Grandview, Missouri
Telephone SOuth 1-1851

NEW!
MUELLER®
COPPER METER YOKE
. . . for tight corner settings!

■ This new copper yoke now lets you set the meter in basement or utility room corners where the piping is too close to the walls to install regular yokes. Meters can be properly set at a convenient height for easy reading and servicing. The sturdy design rigidly supports the house piping and protects the meter from piping stresses.

Installation is fast, too! Convenient union connections for installing yoke in steel pipe or compression couplings for installing in new or existing copper pipe. No other fittings are needed.

Compression couplings with locking nut positively insure continuous electrical bonding of the piping.

two models available:

for 5/8" x 3/4" meters:

- for ¾" steel pipe
  H-14811 — Copper Meter Yoke with ¾" inside I.P. thread union connections on inlet and outlet.
- for ¾" copper pipe
  H-14815 — Copper Meter Yoke with compression couplings (regular or locking nut type) on inlet and outlet.

Write for complete information.

MUELLER CO. Since 1857 SERVING the Water and Gas Industries QUALITY

MUELLER CO.
DECATUR, ILL.

Factories at: Decatur, Chattanooga, Los Angeles;
In Canada: Mueller, Limited, Sarnia, Ontario

4410

Miami Beach's Mile-Long Pedestrian Mall

Miami Beach is in the process of changing its famous Lincoln Road into a traffic-free mall.

The $600,000 transformation will soon be a mile-long promenade filled with gardens, fountains, archways and statues. Dedication of the lavishly-landscaped mall will officially open the 1960-61 winter tourist season.

The Lincoln Road Progress Association, the group administering the mall, plans to schedule special events along the famous shopping street. These will include concerts, various displays, exhibits and fashion shows.

The mall was designed by architect Morris Lapidus; landscaping was designed and will be supervised by John Poulous, superintendent of the Miami Beach Park Department, while Abe Feder, of New York, internationally-known lighting expert, is designing the lighting of the mall

Kalamazoo, Mich., has the only other permanent pedestrian shopping mall in the nation, two blocks long, with a third block now being added. Knoxville, Tenn., is building a 400-foot pedestrian mall. Other cities that have experimented with the plan have discarded it. Representative of these are Evansville, Ind., Middletown, Ohio, and Eugene, Ore. ◄◄

Water Shortage Threat Needs Vigorous Action

Vigorous and realistic action will be required to meet the problem of dwindling water supply, particularly throughout the Southwest. This was the warning expressed by David Karr, president of the Fairbanks Whitney Corporation, speaking recently before the Realty Association of New Mexico. Mr. Karr is also chairman of the executive board of Fairbanks, Morse & Co., an industrial component of Fairbanks Whitney.

Industry's water requirements are great, he emphasized. To produce a ton of steel requires 60,000 to 70,000 tons of water; a ton of rayon, 200,000 gallons; a gallon of alcohol, 236 gallons. An ethylene plant with a capacity of 75 million pounds a year will use almost 3½ million gallons daily. A quality paper mill producing 600 tons daily will use 40 million gallons daily. The demand for fresh water probably will double in the next two decades. ◄◄

Air Pollution Control Notes

Chemists Elect

Dr. E. M. Adams of the Dow Chemical Company was recently elected Chairman of the Air Pollution Abatement Committee of the Manufacturing Chemists' Association.

Smog-Reducing Muffler

The Battelle Memorial Institute of Columbus, Ohio, revealed recently that it has conducted successful laboratory experiments on an automotive exhaust muffler capable of reducing smog. The secret is a novel group of chemical catalysts—substances which help promote and speed a reaction between two other chemicals without becoming involved themselves. The research is being done under a contract with Arvin Industries.

Reno and Tucson Studies

A recent comparative study of air pollution in Reno, Nev., and Tucson, Ariz., showed the following results: Reno has more smoke concentration and sulfur dioxide; Tucson leads in particulate matter, oxidants and carbon monoxide, and the values for nitric oxide and nitrogen dioxide are about equal. It was indicated, however, that if sampling of Reno air had been performed during a period of atmospheric inversion and stability, the Nevada city's readings would have been higher than those of Tucson in every category.

Millions Lost to Air Pollution

Air pollution is costing American cities an estimated $1,500,000,000 a year, according to Carl A. Lindstrom of the United States Public Health Service. Speaking at a recent meeting in Harrisburg, Pa., Lindstrom figured that real estate losses alone came to about $200,000,000 a year, because of dirt, dust and smoke.

Fluoride in California Air

A survey of fluoride content in citrus leaves—a good indicator of fluoride pollution in the air—was made recently in four California counties by a member of the University of California Citrus Experiment Station at Riverside. Comparison of his findings with those of a similar study made in 1953 showed that increases have occurred in and around Riverside, Corona, Rialto and Highland; decreases have occurred in Highgrove, Chino and Etiwanda, and essentially the same levels have prevailed in Fontana, Redlands and Alta Loma.

York Pollution Out of Proportion

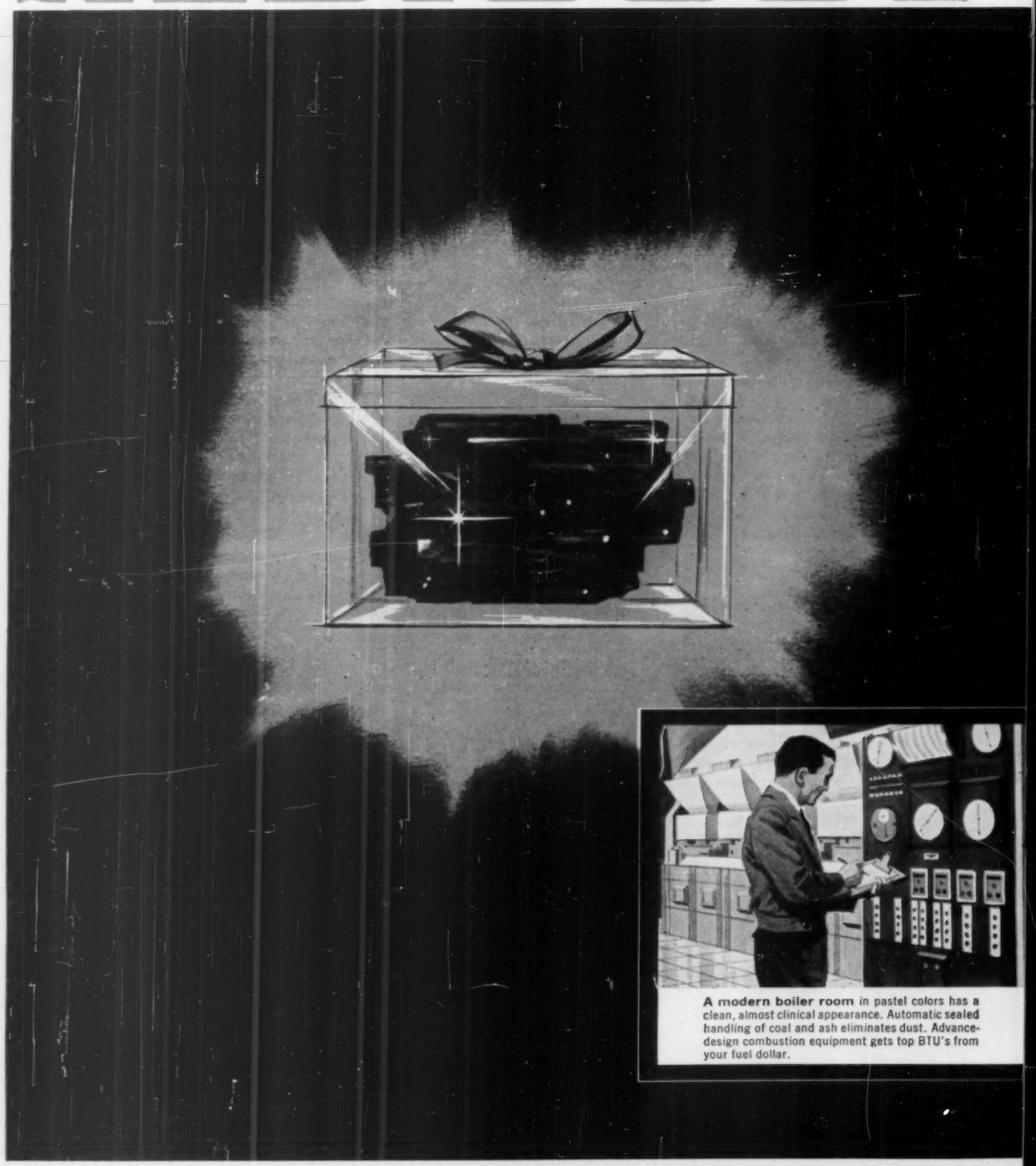
York, Pa., a city in the 50,000-to-100,000 population class, has nearly the air pollution of the average American city with a population between 700,000 and 1,000,000, it was announced recently as the result of a study made by the United States Public Health Service. The State Department of Health has launched an area air-pollution-control study as the result of a request by the Greater York Regional Planning Commission and the West York Borough Council.

Tower Built for AP Study

A 200-foot tower has been installed by the Occupational Health Division of the Canadian Department of National Health and Welfare, at the agro-meteorological site on the Central Experimental Farm, Ottawa, Ontario. Measurements of wind speed, wind gustiness, turbulence, temperature and certain air pollutants will be taken at different levels along the tower. These will be correlated with studies of the levels of air contaminants and their dispersion under various environmental conditions.

—Prepared by Kenneth Kowald

REDISCOV



A modern boiler room in pastel colors has a clean, almost clinical appearance. Automatic sealed handling of coal and ash eliminates dust. Advance-design combustion equipment gets top BTU's from your fuel dollar.

ER COAL !

COAL IS CLEAN because of advanced techniques in processing and combustion

The clean handling, clean burning characteristics of coal brought about by technological advances in preparation and combustion equipment, have made it an even stronger logical choice for low-cost, efficient fuel.

To provide a cleaner, more uniform product, the progressive coal mining industry has developed and installed radically new techniques in mining and preparation. More are on the way, too, as new mines become truly push-button mechanized.

Phenomenal, too, are the strides made in handling and combustion equipment. Sealed conveyor systems, dustless operation, fly ash reinjection, hydraulic ash carriers, electrostatic precipitators, and other innovations give coal a *clean* bill of health.

Through low-cost and high efficiency, coal provides more energy for your fuel dollar. Chesapeake and Ohio transports it economically from the world's finest bituminous coal reserves. Coal is the one fuel that will be available for centuries.

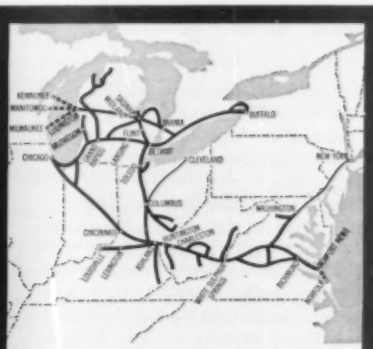
Chesapeake and Ohio Railway

TERMINAL TOWER, CLEVELAND 1, OHIO

Outstandability in Transportation

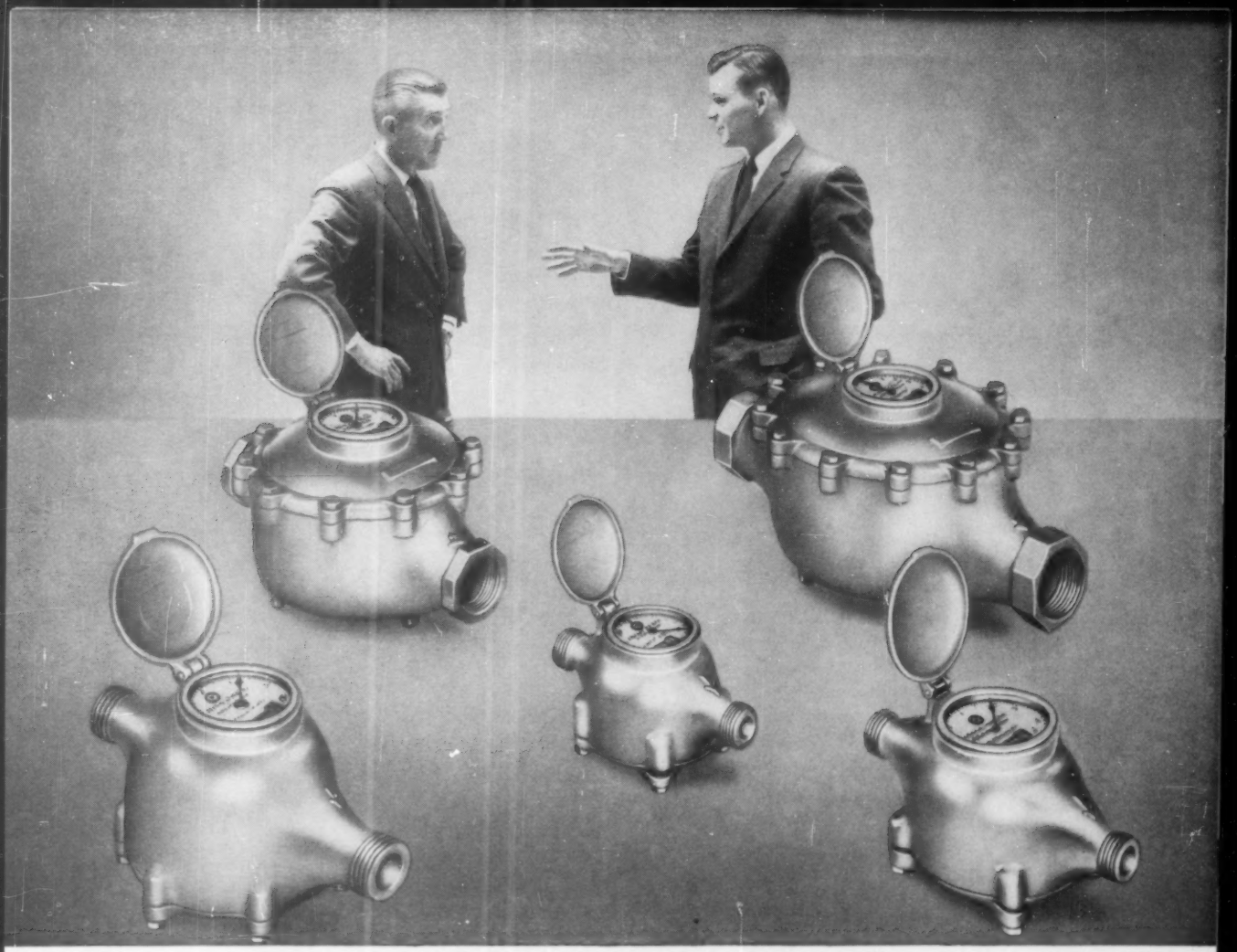
Coal is a good neighbor because of developments in modern equipment that offer stoker-to-stack cleanliness. Textile plants, laundries, hospitals now avail themselves of this reliable, efficient and convenient fuel.

C&O Fuel Service Engineers provide free consultation to C&O patrons on combustion, application, equipment, or plant arrangement problems. Write to R. C. Riedinger, General Coal Traffic Manager, above address.



The 5,100-mile Chessie Route directly serves over 300 mines in America's richest bituminous coal reservoir with the finest fleet of 68,000 coal cars. Specify C&O routing for dependable, efficient delivery.

CHESSIE SERVES THE COAL BIN OF THE WORLD



These magnetic meters cost no more than conventional meters but outperform them all

The greatest bargain among all meters is the Rockwell Sealed Register type. Size for size they cost no more than ordinary meters; cost less in fact than meters fitted with special registers to prevent fogging.

But while initial costs are comparable, what a plus value you get with these *magnetic* meters. You get a hermetically sealed register that prevents condensation and corrosion—makes these meters always easy to read. This sealed register case also contains and protects all the gearing for intermediate reduction as well as register operation.

In this meter alone you get a powerful magnetic drive that *positively* transmits motion from the measuring chamber to the register without the need for a stuffing box. Finally you get fewer parts to wear and only two of these run in water.

What does all this add up to? It totals *more* in meter accuracy and durability, *less* in repair parts costs and meter shop operations. For a fact-packed bulletin write Rockwell Manufacturing Co., Dept. 159I Pittsburgh 8, Pa. In Canada, Rockwell Manufacturing Company of Canada, Ltd., Box 420, Guelph, Ont.

POWERFUL MAGNETIC DRIVE
Illustrating how the driver magnet (held in hand) revolves around a watertight compartment at base of register to push the follower magnet, which in turn drives the register shaft.

SEALED REGISTER METERS

another fine product by

ROCKWELL

Have You Problems?

These Free Booklets Will Help You

Check over these listings which will provide you with important up-to-date information on equipment and services that will assist you in solving municipal problems.

Write to address given or circle corresponding number on free post card on page 57.

All-Purpose Materials Handler

509 The 180° Speed Swing Material handler made by PETTIBONE MULLIKEN CORP., 4700 W. DIVISION ST., CHICAGO 51, ILL., is said to be faster, safer, more efficient handling. It comes with fork, bucket, hooks, boom, backhoe, clamshell, blade and rake attachments. Write for details.

New Diaphragm Pumps

510 The LAYTON CO., INC., P. O. BOX 87B, CUDAHY, WIS. has just introduced a new portable, pneumatic pump. It is self-priming, quiet, may be submerged or used with suction hose for dewatering trenches, sumps, manholes, tank cleanout, sludge or even abrasive laden liquids. Write for details.

Municipal Control Records

511 You can quickly chart municipal action, facts or trends with Control Panels made by ACME VISIBLE RECORDS, INC., 8611 WEST ALLVIEW DR., CROZET, VA. These panels adapt to your needs, saving paperwork, increasing efficiency and preventing costly oversights. Write for descriptive booklet.

Design Prevents Stoker Damage

512 The ILLINOIS STOKER CO., DEPT. AC 1060, ALTON, ILL., points out that the design of its chain-grate and bar key model stokers prevents clinkers from damaging them, and reduces sifting of materials. Write for complete details.

New Voting Machine

513 If you need voting machines you will want to write SEISMOGRAPH SERVICE CORP., BOX 1590, TULSA, OKLA. for the details on its new machine, said to be the first new model in 50 years.

Versatile New Mower

514 If you would like a mower that you can use year round for a variety of municipal jobs such as, sickling, mowing with reel or circular blades, or for snow or earth handling, write to the SIMPLICITY MANUFACTURING CO., PORT WASHINGTON, WIS. for information on Model 700.

New Compressor-Tractor

515 Combining a 125 cfm compressor on a unit that doubles as a tractor SCHRAMM INC., 603 N. GARFIELD AVE., WEST CHESTER, PA. provides a compressor that travels under its own power. Back hoe and front end loader attachments are also available. Write for details.

Laying Sewers With Minimum Drive Blocking

516 A new way of laying sewer lines that keep blocked drives and closed streets to a minimum has been devised by using two Model 310 Trenchliners. Pipe is laid as ditch is dug and backfilled, laying up to 525 feet per day. Write for *Bulletin* KP552 from PARSONS CO., NEWTON, IOWA.

Ice-Snow Removal Tools

517 Is it important in your city to quickly remove ice and snow when it comes? Then write GRAVELY TRACTORS, P. O. BOX 636X, DUNBAR, W. VA. for information about their new snowplow, blower, brush and spreader power tools designed to help you solve ice and snow problems quickly.

New Refuse Collection Unit

518 The all-new Colectomatic Mark II refuse collection unit comes in 13, 16 and 20-cubic yard sizes; hydraulic container dumping mechanism picks up, empties all 1-cu. yd. containers; "duo-press" compaction is said to give bigger loads. For details write HEIL CO., MILWAUKEE 1, WIS.

Stumped by Stumps?

519 DAVEY TREE EXPERT CO., KENT 16, OHIO offers to remove them quickly, economically and below ground level. This is just one of the complete tree care services they offer to municipalities which include planting, trimming, pruning, feeding and spraying. They will welcome your inquiries.

Digs Holes Quickly

520 Only 1½ minutes per hole is the record set by a tractor mounted Ka-Mo drill rig on a recent street lighting project calling for 20-inch diameter holes drilled to 6 foot depths. For details ask for Engineering Bulletin from KWIK-MIX CO., KA-MO TOOLS DEPT., PORT WASHINGTON, WIS.

Complete Well Service

521 From surveys; explorations; site selection; well drilling, casing, screening; to pumps, LAYNE & BOWLER, INC., MEMPHIS 8, TENN. offers them all with 75 years of know-how to back them up. Write, they will gladly supply information to help solve your well problems.

Have You a Lighting Problem?

522 LINE MATERIAL INDUSTRIES, MILWAUKEE 1, WIS. offers to help solve any outdoor lighting problem. Maker of a broad line of outdoor lighting equipment they have an Engineering Service which is available to you.

Safety Aloft

523 Now your crewmen can work aloft with complete safety with a Pelican fiberglass bucket which levels itself. Aloft in seconds it stays put without "creep," or changes locations instantly. Costs less than many powered aerial ladders. For details write PITMAN MFG. CO., 12872 PITMAN RD., GRANDVIEW, MO.

Fringe Area Sewage Treatment

524 A sewage treatment system designed for areas of 200 to 10,000 homes at low initial and operating cost which can be enlarged or can even be dismantled and re-erected elsewhere is being offered by MUNICIPAL SERVICE CO., 4629 ROANOKE PKWY., KANSAS CITY 12, MO. Write for details.

Really Tight Sewer Pipe Joints

525 Press-Seal confined compression-type rubber gasket joints remain effectively sealed and watertight even with as much as a 2° pipe deflection. Only unusual deflection can break the seal. For details write PRESS-SEAL GASKET CORP., P. O. BOX 482, RR. 6, COVINGTON RD., FORT WAYNE, IND.

"Sewage Sludge Utilization Datalog"

526 is a booklet which points out the way to turn sewage from an expense to a profit. If your city is still destroying this source of revenue, write ROYER FOUNDRY & MACHINE CO., 166 PRINGLE ST., KINGSTON, PA. for your copy.

Water Works and Sewage Problem Solving

527 If you have any problems of water conditioning, ion exchange or waste treatment, PFAUDLER PERMUTIT INC., PERMUTIT DIV., 50 W. 44 ST., NEW YORK 36, N. Y. will gladly send its experts to analyze and work out the best solution on the basis of initial vs. operating costs to provide the desired result. Write for details.

Greater Traction For City's Cars

528 Can you afford to have your municipal emergency vehicles get stuck? No? Then write DANA CORP., TOLEDO 1, OHIO for free booklet describing their slip differential which shifts power instantly to the rear wheel and gives your car greater traction.

Magnetic Water Meters

529 . . . cost no more than conventional ones, according to ROCKWELL MFG. CO., DEPT. 000, PITTSBURGH 8, PA. and less than meters fitted with fog preventing registers, are not subject to condensation or corrosion, have fewer parts to wear, and give meter accuracy and durability. Write for details.

Durable Plastic for Many Municipal Uses

530 You will want to know about Vibrin which reinforced with fiber glass will never rot or corrode, may be used for park seats, fire alarm boxes, bus shelters and even Christmas street ornaments. Write now for more details from U. S. RUBBER. NAUGATUCK CHEMICAL DIV., DEPT. 1144V, ELM ST., NAUGATUCK, CONN.

Communicate with Municipal Vehicles

531 Vocaline 4-channel Commaire ED-27M citizens band radio is a low-cost system for communicating with your municipal vehicles. It has a 15 mile range, gives clarity, reliability and flexibility. For literature write to VOCALINE CO. OF AMERICA, 131 COULTER ST., OLD SAYBROOK, CONN.

(See page 55 for more Bulletins)

*MM tapping sleeves by MUELLER®

*MINIMUM MAINTENANCE

. . . of Tapping Sleeve inventory is the money-saving service Mueller offers because . . .

MUELLER Tapping Sleeves and Valves provide a means of running a lateral with a minimum of inconvenience that means *extra* user benefit. The tapping valve itself has Mueller's exclusive four point wedging mechanism. The heavy-duty construction and extra length of the tapping sleeve actually strengthens the main at the point of connection. A Mueller Mechanical Joint Sleeve for a specific nominal size will fit all classes of cast iron pipe regularly used by selecting one of two sets of gaskets.

If any doubt exists as to the class of pipe to be uncovered, the operator takes both sets of gaskets to the job site. By stocking both sets of gaskets he may use either the duck-tipped gaskets for centrifugally cast pipe or the plain end gaskets for Class D pit cast pipe.

This simple detail of design is typical of many extra features of Mueller AWWA Tapping Sleeves and Valves. It is also typical of the great attention to detail in research, design and engineering that becomes a part of every Mueller product used by the water industry. For complete information write . . .

MUELLER CO. Since 1857 SERVING the Water and Gas Industries QUALITY

5525

MUELLER CO.
DECATUR, ILL.

Factories at: Decatur, Chattanooga, Los Angeles
In Canada: Mueller, Limited; Sarnia, Ontario

Mayor Florimand J. Bergeron and Fire Chief J. Leo Rivard of Willimantic, Conn., discuss operation of the city's completely automatic Gamewell Fire Alarm System. The mayor, an ex-fire commissioner, is a key influence in progressive fire protection measures.

Their city gears fire protection to growth...

"We add fire alarm boxes and related equipment as fast as city growth demands and the budget permits."

These words by Mayor Florimand J. Bergeron of Willimantic, Conn., exemplify the city's forward-thinking attitude on fire protection. Guarded by Gamewell "Pull" Fire Alarm Boxes since 1887, this modern community of 18,000 has consistently expanded the system. Since 1954 alone, 22 new boxes have been added.

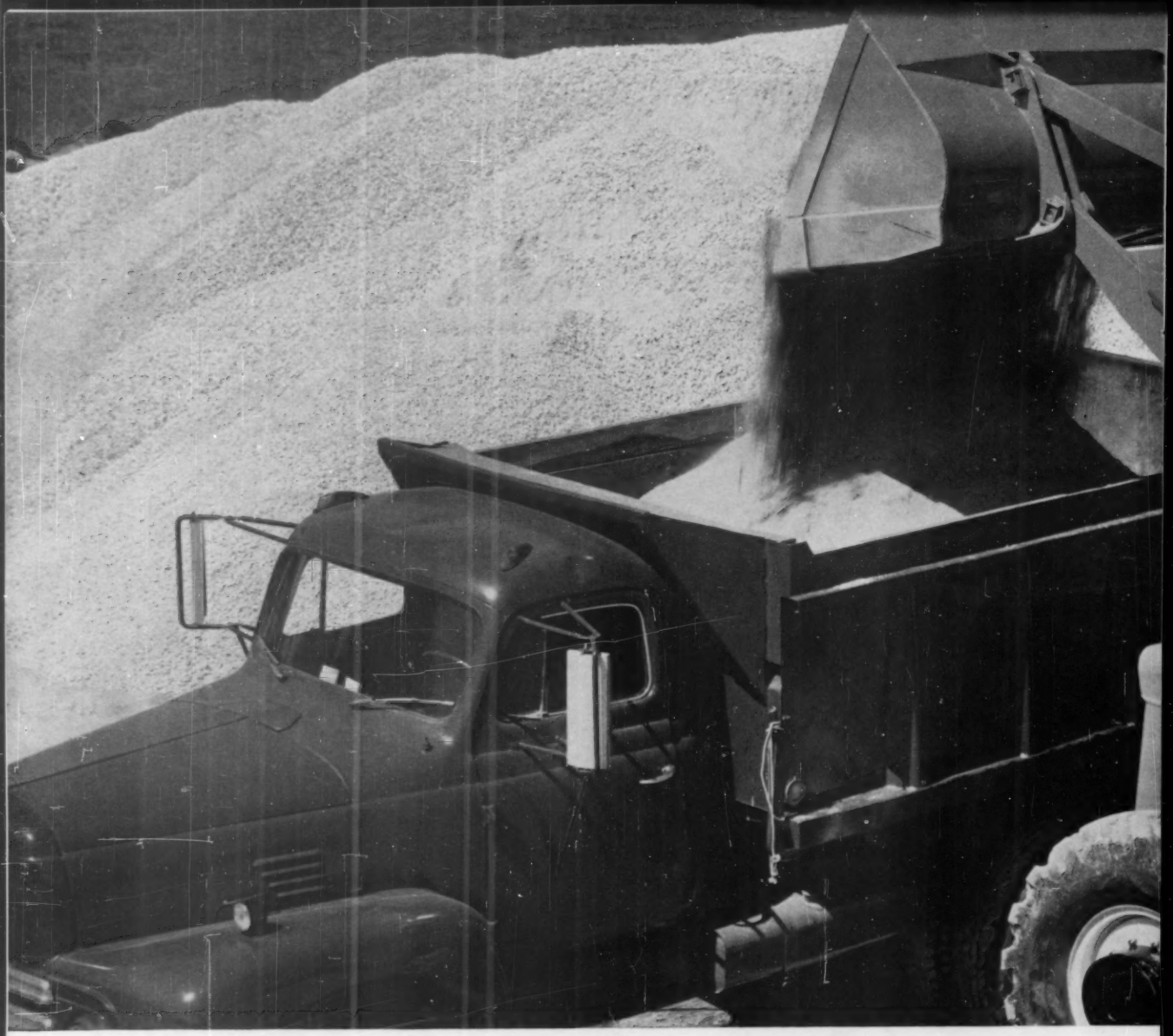
Willimantic city officials feel that the Gamewell System has thoroughly proved itself, both in action and in comparison with other types of fire alarm systems. When major replacements became necessary in 1954, a broad and intensive study of these other types was made. Unanimous decision of the mayor, his fire chief, and the board of fire commissioners was that no other system equalled Gamewell for dependability, efficiency, and economy.

Willimantic now has 90 boxes, including street boxes and those in schools, hospitals, industrial plants, old age homes and supermarkets. An alarm "pulled" from any one is *automatically* transmitted to *all* fire personnel: by direct lines to fire station and fire officers' homes; by means of an air horn to volunteer firemen. No one has to speak a word!

Has *your* community fire alarm protection as positive and as economical as that of Willimantic? Be certain. Let a Gamewell Survey answer this vital question without any obligation. Write THE GAMEWELL COMPANY, 1270 Chestnut Street, Newton Upper Falls 64, Mass. *A Subsidiary of E. W. Bliss Company.*

BLISS Gamewell

FIRST...WHEN SECONDS COUNT



ONLY LOADER WITH 5-WAY

Allis-Chalmers tractor loaders offer extended service life, far less down-time by thoroughly cleaning all air and filtering all hydraulic oil.

Unmatched filtering protection—that's what you get in all Allis-Chalmers tractor loader models.

Air is double filtered by:

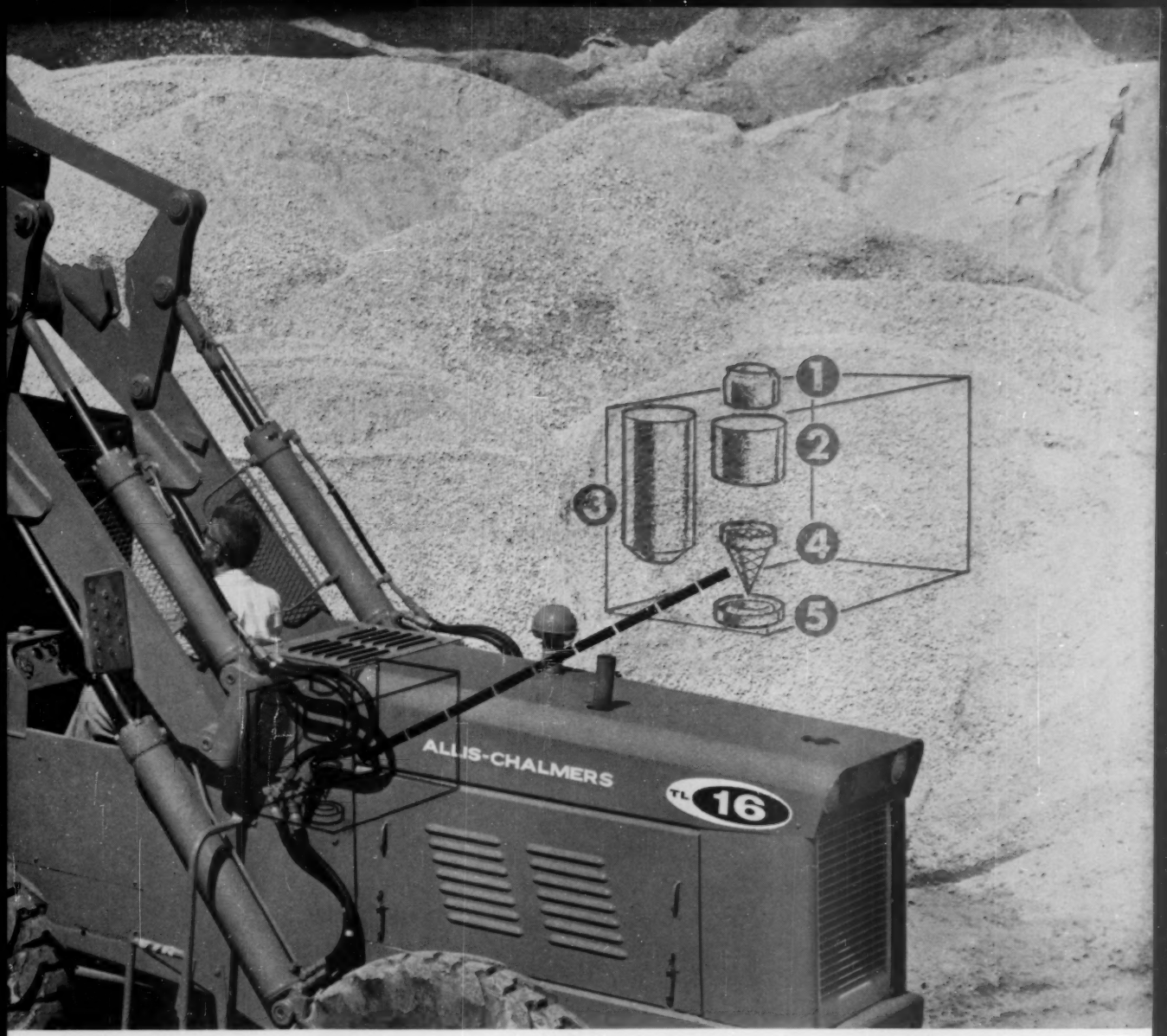
1. air breather
2. air filter

Hydraulic oil is cleaned by:

3. full-flow micronic filter
4. conical screen
5. magnetic filter

This 5-way filtering protection brings peak hydraulic operating efficiency . . . extended service life.

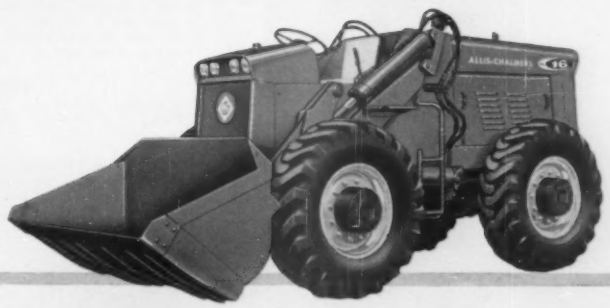
move ahead with



HYDRAULIC PROTECTION

Complete filtering protection is just another way Allis-Chalmers tractor loaders set the pace in the loader field. They also feature: *pin-connected axles* that eliminate shifting and rolling under load; *exclusive single-lever control* of all speed and direction; *safe, well-located dump cylinders* that are up and away from dirt; *extra reach* for easier dumping and *added stability* for moving big loads without tipping or spilling.

Your Allis-Chalmers dealer can give you facts on all 5 tractor loader models—ranging in capacity from 1 to 5 cu yd, in power from 76.5 to 130 horsepower. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.



ALLIS-CHALMERS

... power for a growing world

WHEN
IT
SNOWS...

are
your streets
only
this
wide...

when
they
should
be
this
wide?

a snowblower
can clean your streets
full width . . . cast snow
where you want it . . .
avoid clogged driveways,
plowed-in hydrants . . .
and do the job quickly,
efficiently and
economically.

SICARD has been
building and improving
snowblowers,
large and small,
for more than 30 years.
Look to Sicard—
the original name
in snowblowers—
for the finest snow removal
equipment made . . .
a complete line ranging
from the detachable
tractor-mounted
BB blower to the mighty
Snowmaster Senior.

Drop us a line for
descriptive literature.

SICARD

SICARD INDUSTRIES, INC.
753 West Main St., Watertown, N.Y.
Telephone Sunset 2-4600

CATALOGS for Improved Municipal Services

Write to address given or circle corresponding number on free post card on page 57.

"Dusk to Dawn" Street Lighting

532 Municipalities can have outdoor lighting, automatically controlled by F-P Series 6600A Photoelectric control. Thousands of these installations are already in use. Write THE FISHER-PIERCE CO., 94 PEARL ST., SO. BRAINTREE 85, MASS. for complete design information.

"Safe-T-Salt"

533 "Safe-T-Salt" is the new name for the rock salt for ice control marketed by MORTON SALT CO., DEPT. AC-11, 110 N. WACKER DR., CHICAGO 6, ILL. this season. Available in bulk or package, it is designed to act quickly and thoroughly to control ice and snow.

Speedy Excavation

534 Want a low cost way to speed spot excavation work, open bell holes or dig under sidewalks? The new Shawnee 88-C tractor mounted Hydro-Clam can do it, digging 12 foot depths quickly in cramped quarters. Ask for details from the PARSONS CO., SHAWNEE DEPT., NEWTON, IOWA.

Quality Water Meter Your Best Buy

535 The value of a water meter is in what it earns. A quality meter will continue to give accurate readings where a poor one will lose accuracy, which means revenue—and it will require more maintenance. More information may be had from NEPTUNE METER CO., LIQUID METER DIV., 47-25 34th ST., LONG ISLAND CITY 1, N. Y.

Coating Protects From Sewage Gas

536 Wherever concrete or metal surfaces are exposed to sewage gases, sanitary engineers have found that tough, impervious Bitumastic coatings solve the problem of corrosive attack. Write to KOPPERS CO., INC., TAR PRODUCTS DIV., DEPT. 103L, PITTSBURGH 19, PA. for explanatory brochure.

Fire-Fighting Equipment With Stamina

537 MACK FIRE APPARATUS, ALLENTOWN, PA. recommends that you select "your next fire apparatus to meet the most demanding assignment." Then they feel you will specify Mack equipment powered by a Thermodyne engine. They offer two gasoline and one diesel model. Write for complete details.

Carefree Lockers

538 Need lockers at your municipal building? THE AMERICAN LOCKER CO., INC., DEPT. 410, 211 CONGRESS STREET, BOSTON, MASS. offers a carefree, profitable Coin-Lok plan whereby a city may buy or lease locks (the company will maintain them.) Write for details and then compare price, and quality.

Cast Aluminum Waste Receptacles

539 A new waste receptacle called "Vantage" made of baked enamel cast aluminum was recently introduced by NATIONAL RECEPTACLE CO., INC., BEREA, OHIO. A self-closing door keeps out rain and the top flips back to allow easy emptying. For complete details write the company.

Automatic Bucket Dumper

540 The O'BRIEN MFG. CO., 5632 NORTHWEST HIGHWAY, CHICAGO 46, ILL. has just announced a new type bucket Dumper that features a hopper for both storing and dumping debris into a truck. Write and find out how it frees a truck for other use while the bucket hopper is being filled.

Economical Parking Meters

541 If your municipality needs parking meters write to KARPARK CORP., STARKVILLE, MISS. for complete data describing their Unimatic and Twin-O-Matic meters. They point to lower costs for installation, maintenance, enforcement and collection.

Refuse Containers That Last

542 One-piece expanded metal construction with smooth ring edge for strength, welded reinforcing bands and ribs, galvanized or vinyl finish for long life with rugged bottom are some of the features of the refuse containers made by WHEELING CORRUGATING CO., WHEELING, W. VA. Write for details.

One Man Refuse Collection

543 DEMPSTER BROTHERS, INC., DEPT. AC-10, KNOXVILLE 17, TENN. offers a completely equipped (even to a cab-o-scope) refuse truck that operated by one man picks up, dumps and drives on without his having to leave the cab. Write for free brochure.

Water Filter Sand & Gravel

544 For high quality sand or gravel for your rapid sand filter you should get information from NORTHERN GRAVEL CO., BOX 307, MUSCATINE, IOWA on their sand and gravel which is carefully screened, graded, and washed to fit your exact requirements.

Glass Beads for Traffic Marking

545 Write FLEX-O-LITE MFG. CO., 8301 FLEX-O-LITE DR., ST. LOUIS 23, MO. for a free booklet which tells about No. 831 and UB 68 Reflective Glass Beads that are whitest white, lead-free, of optical quality to provide extra reflectivity throughout a longer life.

Warning Device Laws

546 A new booklet summarizing contractors' responsibility for providing safety devices, warning lights, torches, lanterns and signs according to the laws of various states is available by writing the R. E. DIETZ CO., Dept. 910, 225 WILKINSON ST., SYRACUSE, N. Y.

Battery for 20 Years

547 The EXIDE INDUSTRIAL DIV., ELECTRIC STORAGE BATTERY CO., RISING SUN & ADAMS AVES., PHILADELPHIA, PA. reports they have boosted electrical power of storage batteries for stationary service by 66%. They are used for emergency lighting, power, fire alarm or police telegraph service. Write for details.

Hot-Roll Asphalt Patcher

548 For asphalt patching of everything from pot-holes to utility cuts, and sidewalk paving ELLIS DISTRIBUTING CO., BOX 168, LIBERTY, MO. promises that its Hot Roll, model SP18 will do the job, furnishing a smooth, well compacted, water tight surface. They will gladly send you information.

Butterfly Valves

549 The FABRI-VALVE CO. OF AMERICA, 2100 N. ALVINA AVE., P. O. BOX 4352, PORTLAND 8, ORE. is presenting a wide range of butterfly valves which are said to offer minimum resistance to flow, give bubble-tight shut-off and bear severe stress. Write for Form 24.

(See page 56 for more Bulletins)

Your City Can Improve Services and Reduce Costs

...by taking advantage of the improved municipal equipment offered below.

Large Volume Diatomite Filtration

550 Diatomite Filters are made by SPARKLER MFG. CO., CONROE, TEXAS for quality filtration of large volumes of water. The company points to hundreds of successful installations which take advantage of the reduced chemical treatment required with this device. Write for engineering data.

Pipe Co. Expands Research

551 In order to bring an even higher quality to its pipe products for water and sewerage systems and to improve manufacturing techniques, the LOCK JOINT PIPE CO., EAST ORANGE, N. J. has erected a new research center.

Portable Lights With Power

552 Portable lighting at night can be tricky, but CARPENTER MFG. CO., 963 BRADLEY ST., SOMERVILLE 45, MASS. now offers "portalites" which will cover five times the area of "sports type" lighting and powered by batteries that give up to 400% longer light at less cost. Write for details.

Low-Cost Earthmoving

553 The Ten-Ten Crawler with its all-new 4-cycle, 4 cylinder valve-in-head engines operating at speeds to 2500 rpm, giving high horsepower per pound, plus rugged hugging ability is one of a complete new line of equipment by JOHN DEERE, 3000 RIVER DR., MOLINE, ILL. Write for catalog.

Lightweight Oxygen Mask

554 ROCKWOOD SPRINKLER DIV., 38 HARLOW ST., WORCESTER 5, MASS. promises protection from breathing hazards with its lightweight Pocketaire self-contained oxygen breathing equipment. It comes in three sizes to fit all types of face mask, may be donned in ten seconds, and does not restrict fire-fighting. Write for details.

Reflective Traffic Marking

555 Tested under the supervision of traffic engineers which subjected Prismo reflective marking to gruelling abuse, intense wheel abrasions and severe weather-wear, markings stood up undiminished in their rain-or-shine efficiency and 24-hour visibility. Write PRISMO SAFETY CORP., HUNTINGDON, PA. for details.

Dog Tags

556 MEYER & WENTHE, INC., 30 S. JEFFERSON ST., CHICAGO 6, ILL. producers of marking devices for over a century offer dog tags of quality at the right price. Before you issue next year's licenses why not write the company for details and prices?

Pipe Tools

557 Water and Sewage Works men will find it worth while to write for a copy of Bulletin NP-1057-A describing the extensive range of nine tools manufactured by REED MANUFACTURING CO., ERIE, PA.

Instruments for Water Systems and Sewage Disposal Systems

558 *Catalog* No. 23 has been prepared by LEUPOLD & STEVENS INSTRUMENTS, INC., 4445 NE GLISAN, PORTLAND 13, ORE., as a guide describing hydrologic instruments, including liquid flow recorders and indicators; telemetering systems; liquid level recorders; servo controls for recorders and transmitters; precipitator records and gauges. Write for your copy.

Rugged Snow Fighter

559 Snows are coming. Write GOOD ROADS MACHINERY CORP., MINERVA, OHIO for complete information on its snow plows that are heavy duty, equipped with a variety of blades to provide safe speedy snow removal under any condition and at low cost.

Snow Plow Wax

560 Gledhill Snow Plow Wax produces a hard, slick surface that keeps snow from sticking to the moldboard, reduces friction, prevents rusting, is quick drying and non-flammable. For information on this new wax write THE GLEDHILL ROAD MACHINERY CO., GALION, OHIO.

Control for Street Lighting

561 The Precision Photoelectric control is a light-sensitive switch which turns artificial light on or off when the natural light level reaches a predetermined point. Write PRECISION MULTIPLE CONTROLS, INC., 233 CHESTNUT ST., RIDGEWOOD, N. J. for information on this field tested device.

Rust-Preventive System

562 If you would like to maintain your metal structures rust free, write NATIONAL LEAD CO., 111 BROADWAY, NEW YORK 6, N. Y. for information on its basic silico chromate M50 pigment for use in all paint coats; even in a primer without finish coat it has endured ten years.

Control Air Pollution!

563 If complaints come in that your incinerator stack is emitting smoke you need the Potentiometer Smoke Recorder, which tells when you are getting improper combustion. Write PHOTOMATION, INC., BERGENFIELD, N. J. for Bulletin 592 to learn how it works.

Sturdy Steel Fence

564 Do you like fencing to stand up well over the years. USS Cyclone fencing has been thoroughly tested under heavy impact, fire and corrosive conditions. For information write to CYCLONE FENCE, AMERICAN STEEL & WIRE, DEPT. 0365, 614 SUPERIOR AVE., N. W., CLEVELAND 13, OHIO.

Speedy Reference With Microfilm

565 Sharp microfilm images on aperture cards are speeding routines and cutting costs for cities. Using just 5% of the space used for originals, they can be quickly found and viewed clearly in a Film Reader. Write RECORDAK CORP., 415 MADISON AVE., NEW YORK 17, N. Y. for booklet.

Money Saving Diesel Power

566 The NORDBERG MANUFACTURING CO., MILWAUKEE 1, WIS. points to the Ponca City, Okla. Municipal power plant as proof that its Duafuel unit operates with new records in volume, economy and profits. This plant produced 55 million kw hours at 5.67 mills per kwh. Write for details.

Sportslighting Bulletin

567 "Night time is play time," says CROUSE-HINDS CO., SYRACUSE 1, N. Y. in a revised edition of its popular 72-page sports lighting bulletin, featuring nearly 100 suggested lighting layouts for sports of all kinds giving information for floodlighting best suited for each. Write for your copy of Bulletin 2721.

Radio Traffic Control

568 is bringing greater traffic control efficiency, flexibility and economy to cities. MOTOROLA COMMUNICATIONS & ELECTRONICS, INC., 4501 AUGUSTA BLVD., CHICAGO 51, ILL. would like to show you how this system can help your city meet its traffic problems. Write for information.

Meters Clean as New

569 To transform scaled and dirty water meters to bright, thoroughly clean ones, write the SANFAX CORP., P. O. BOX 604, ATLANTA, GA., they will gladly give details on Sanfax MC-253 which removes organic residues, oxides and hard water scale without attacking meter parts.

Chain-Driven Power Mower

570 For the latest literature describing full chain driven power mower write LOCKE MOWER DIV., LOCKE STEEL CHAIN CO., 1315 CONNECTICUT AVE., BRIDGEPORT 1, CONN. It gives "floating" action, "finger-tip" control and cutters that give streakless, even cut.

Quality Well Strainer

571 If you want to avoid replacement you should install a well strainer with which you are guaranteed years of service. COOK WELL STRAINER CO., 6330 GLENWAY AVE., CINCINNATI 11, OHIO offers them available in red brass, silicone bronze, Armco iron or stainless steel. Write for details.

Construction Equipment

572 A new catalog describing the complete line of Michigan construction and bulk handling equipment is available from the CONSTRUCTION MACHINERY DIV., CLARK EQUIPMENT CO., PIPESTONE PLANT, BENTON HARBOR, MICH. Write for Bulletin 150A.

Profitable Parking Meters

573 For profitable parking meters for on- or off-street use that are automatic and accurate, that can be adjusted on the site for time-rate and coin changes, write to MAGEE-HAILE PARK-O-METER CO., 3909 WILLOW SPRINGS RD., OKLAHOMA CITY, OKLA.

1961 Model Police Car

574 The PLYMOUTH DIV., CHRYSLER CORP., 6334 LYNCH RD., DETROIT, MICH. announces its new 1961 Plymouth Police special and promises lightning-like action, rugged stopping power and cornering that is virtually level. Write for descriptive catalog on their full line of police cars.

Parking Meters To Foil Vandals

575 DUNCAN PARKING METER CORP., 835 N. WOOD ST., CHICAGO 22, ILL. reports that their V.I.P. parking meter offers genuine security to meter revenue. Tamper-proof door, burglar-resistive housing and patented seal coin box are some of its features. Write them for details.

Clean It Ultrasonically

576 Whether it's meters, valves or traffic control time switches, after 90 seconds in an Accoustica Ultrasonic Unit, it is as clean as new and ready to go. Water, sewerage and lighting departments will all find it useful. Write to ACCOUSTICA ASSOCIATES, INC., 10400 AVIATION BLVD., LOS ANGELES 45, CALIF. for details.

(See page 60 for more Bulletins)

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD
FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE
470 PARK AVENUE SOUTH
NEW YORK 16, N. Y.

IN THE DARK?

If you need information on any type of municipal service or equipment mentioned or advertised in this issue, these reply cards will get action in a hurry.

TO THE AMERICAN CITY's Catalog Supply Department:
Please send literature on items numbered as follows, starting on page 49

509	525	541	557	573	589	605	621	637	653
510	526	542	558	574	590	606	622	638	654
511	527	543	559	575	591	607	623	639	655
512	528	544	560	576	592	608	624	640	656
513	529	545	561	577	593	609	625	641	657
514	530	546	562	578	594	610	626	642	658
515	531	547	563	579	595	611	627	643	659
516	532	548	564	580	596	612	628	644	660
517	533	549	565	581	597	613	629	645	661
518	534	550	566	582	598	614	630	646	662
519	535	551	567	583	599	615	631	647	663
520	536	552	568	584	600	616	632	648	664
521	537	553	569	585	601	617	633	649	665
522	538	554	570	586	602	618	634	650	666
523	539	555	571	587	603	619	635	651	
524	540	556	572	588	604	620	636	652	

I would also like to receive manufacturers' booklets on.....
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Name: (Please Print).....
Title:.....
Address:.....
..... 11-60

A Listing of Your Business Connection is Important

TO THE AMERICAN CITY's Catalog Supply Department:

Please send literature on items numbered as follows, starting on page 49

509	525	541	557	573	589	605	621	637	653
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515	531	547	563	579	595	611	627	643	659
516	532	548	564	580	596	612	628	644	660
517	533	549	565	581	597	613	629	645	661
518	534	550	566	582	598	614	630	646	662
519	535	551	567	583	599	615	631	647	663
520	536	552	568	584	600	616	632	648	664
521	537	553	569	585	601	617	633	649	665
522	538	554	570	586	602	618	634	650	666
523	539	555	571	587	603	619	635	651	
524	540	556	572	588	604	620	636	652	

I would also like to receive manufacturers' booklets on.....

.....

.....

.....

Name: (Please Print).....

Title:.....

Address:.....

..... 11-60

A Listing of Your Business Connection is Important

HERE'S A SOLUTION

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD

FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE

470 PARK AVENUE SOUTH

NEW YORK 16, N. Y.

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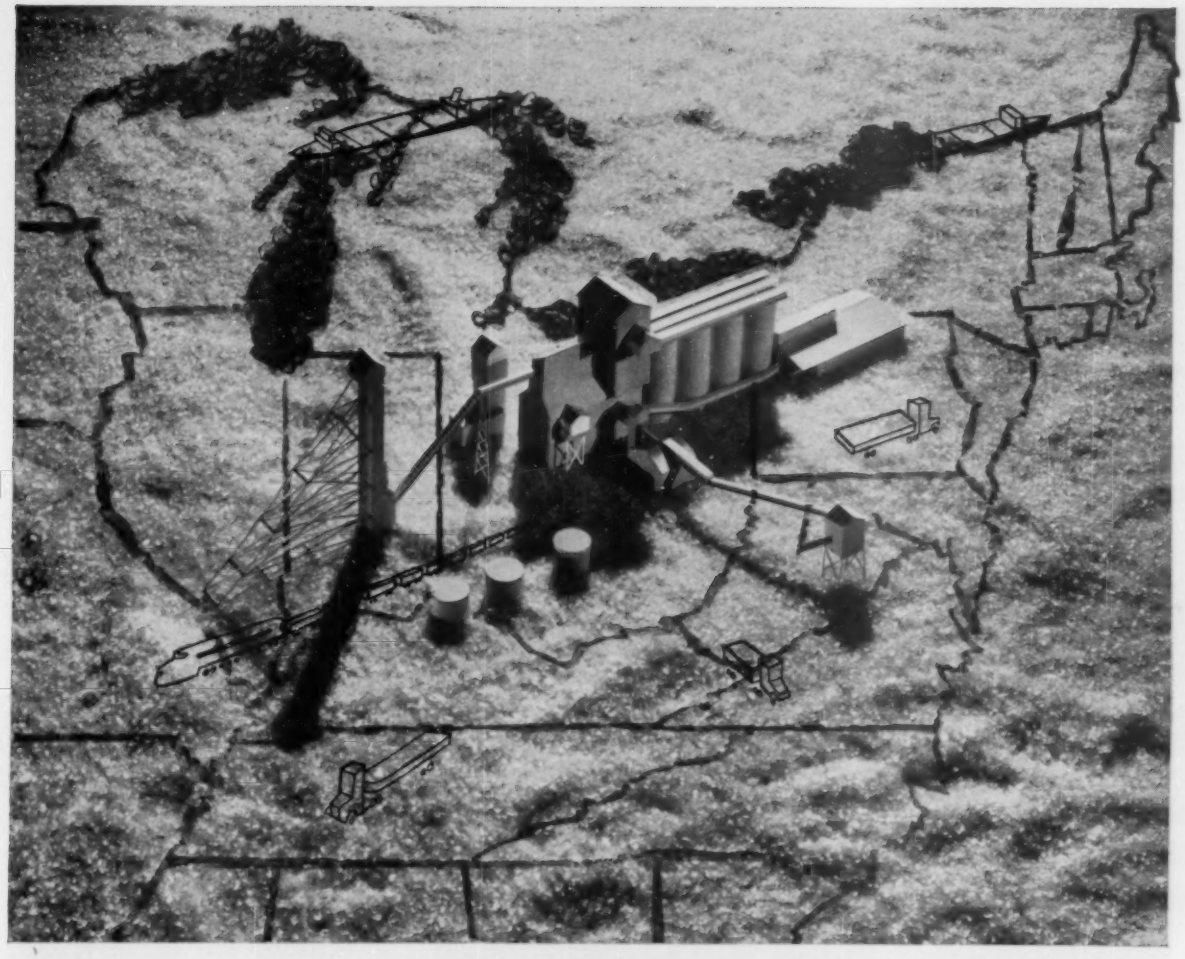


A new mine at Fairport, Ohio, is another reason it pays to order Safe-T-Salt* from Morton

Located 29 miles east of Cleveland on Lake Erie, Morton's Fairport Mine offers a convenient source of SAFE-T-SALT (rock salt) for the snow belt cities of the East and Midwest. This new mine can deliver SAFE-T-SALT by boat to all Great Lakes ports and by truck and rail to inland customers.

The new Fairport Mine is but one of several strategically located sources of Morton SAFE-T-SALT, assuring Morton customers prompt, dependable delivery in time for winter.

Be ready all winter—keep plenty of SAFE-T-SALT on hand

Now is the time to check your supply of Morton SAFE-T-SALT for ice and snow removal. You'll want sufficient quantities in stock so you don't get caught short in the event of late snow storms or a prolonged winter like last year. Your Morton representative can advise you on the best way to stockpile Morton SAFE-T-SALT without loss or inconvenience. Any salt remaining at the end of winter can be put to excellent use in summer road stabilization projects.

MAIL COUPON TODAY!

☐ Please send me your new booklet on ice and snow removal.

Name _____
(Please Print)

Title _____

Company _____

Address _____

City _____ *Zone* _____ *State* _____

*Safe-T-Salt is a trademark of the Morton Salt Company

MORTON SALT COMPANY
INDUSTRIAL DIVISION

Dept. AC-11, *110 N. Wacker Drive, Chicago 6, Ill.*

FREE catalogs

Write to address given or circle corresponding number on free post card on page 57.

Sewage Treatment Equipment

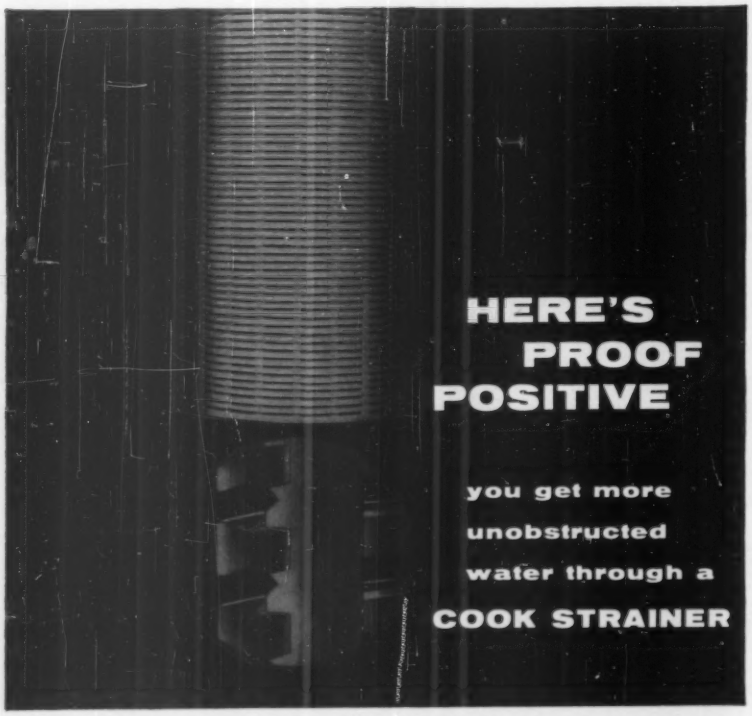
577 Digester equipment manufactured by the PACIFIC FLUSH TANK CO. 4241 RAVENSWOOD AVE., CHICAGO 13, ILL. plays an important role in the Ohio River clean-up program. This equipment, utilized by many of the sewage treatment plants along the Ohio, includes floating digester covers, recirculation units, shell and tube heat exchangers and gas safety equipment. Write for more details on this and other sewage treatment and pumping equipment.

Mercury Lamps

578 SYLVANIA LIGHTING PRODUCTS, DIV. of SYLVANIA ELECTRIC PRODUCTS INC., DEPT. 63, 60 BOSTON ST., SALEM, MASS. points to features that make its mercury lamps outstanding: built in shock absorbers; brighter, faster lighting; twice welded for strength; allows keeping performance records; weather conditioned glass shell. Write for details.

Generator Gives Full Power

579 When a heavy starting load makes voltage dip the Magneciter Generator restores it in one second. It has no moving parts in exciter or voltage regulator to wear out, is said to give lasting performance and operating economy. Write D. W. ONAN & SONS INC., 2682 UNIVERSITY AVE., S. W., MINNEAPOLIS 14, MINN. for details.



Cook's exclusive V-shaped slot construction permits the most direct water way from the water bearing strata to the well. This time-tested and proven design allows for maximum development of your well by removing silt, alluvium, clay, and fine sand from around the outside of the strainer, thus providing a natural filter of coarser and uniform sand and gravel.

Why not investigate all the advantages of Cook Strainers? They are available in Red Brass, Silicon Bronze, Armco Iron, or Stainless Steel; in as many different slot sizes as required. Eight to twenty-four hours delivery often possible by telephoning Cincinnati HUmboldt 1-8800.

COOK WELL STRAINER CO.
6330 Glenway Avenue • Cincinnati 11, Ohio
WORLD'S LEADING NAME IN WELL STRAINERS

Have Streets Safe From Snow-Ice

580 . . . and the way to assure their safety is to eliminate the ice and snow by using rock salt. INTERNATIONAL SALT CO., CLARKS SUMMIT, PA. points out that their rock salt is safe, clean, economical and harmless. Write for details.

Plastic Power Broom Fiber

581 Postran-Polypropylene is a test-proven fiber manufactured by the E.B.&A.C. WHITING CO., BURLINGTON, VT. for use in street sweeping brooms. It is said to have longer life, sweeping efficiency in all weather, excellent bend recovery, resistance to chemicals. Write for details.

Multi-Cell Incinerator Stokers

582 FLYNN & EMRICH, BALTIMORE 2, MD. points to the many installations of its multi-cell incinerator stokers in proof that its flexibility of operation with reduced labor needs, lifetime dependability and progressive burning for maximum results is successful. For full information write the company.

Decorative Fountain Nozzles

583 Would you like to beautify a municipal park or mall with a fountain? Then you will want to write for A.I.A. File No. 38-G which describes the full line of decorative fountain spray nozzles put out by the SCHUTTE AND KOERTING CO., CORNWELLS HEIGHTS, BUCKS CO., PA.

Ready for Ice Problems?

584 A Mountable Materials Spreader which features a sturdy cover grid that breaks up frozen lumps in sand, cinders, etc., allowing only spreadable material through, preventing damage, may help. Write FOX RIVER TRACTOR CO., DEPT. R15, 1020 N. RANKIN ST., APPLETON, WIS.

Cleans Water Lines

585 The Hydraulic Water Ram, a device which clears blocked drains by hydro-static impact, is now being used for removing rust and corrosion through use of a new adaptor hose. Write to HYDRAULIC MFG. CO., DEPT. AC, BRIDGEPORT 4, CONN. for details.

Versatile Tractor Shovel

586 "More Mileage for Your Tax Dollar" is the title of a new bulletin free from the FRANK G. HOUGH CO., 710 SUNNYSIDE AVE., LIBERTYVILLE, ILL. about its Payloader which can dig trench bell holes up to 12 feet deep and with attachments do a variety of year round municipal jobs.

Economical Stump Cutter

587 Write VERMEER MFG. CO., 1452 W. WASHINGTON, PELLA, IOWA and ask for its booklet on Pow-R Stump Cutter. It will show you how to save man-hours and money removing stumps. The device is one-man operated, removes stumps in minutes, even in tight places.

Parking Controls

588 Cities that need more off-street parking should write to JOHNSON FARE BOX CO., 4621 N. RAVENSWOOD AVE., CHICAGO 40, ILL. for Bulletin No. 580 which describes Parcoa automatic parking equipment and controls. It is designed for simplicity of operation and low cost.

Purer Water

589 . . . may be yours and the TENNESSEE CORP., 612-629 GRANT BLDG., ATLANTA 3, GA. would like to tell you how they can help with coagulation, softening, iron and manganese removal, corrosive water and filtration. Write for details on its products.

(See page 63 for more Bulletins)

Biggest, Best Sewer System

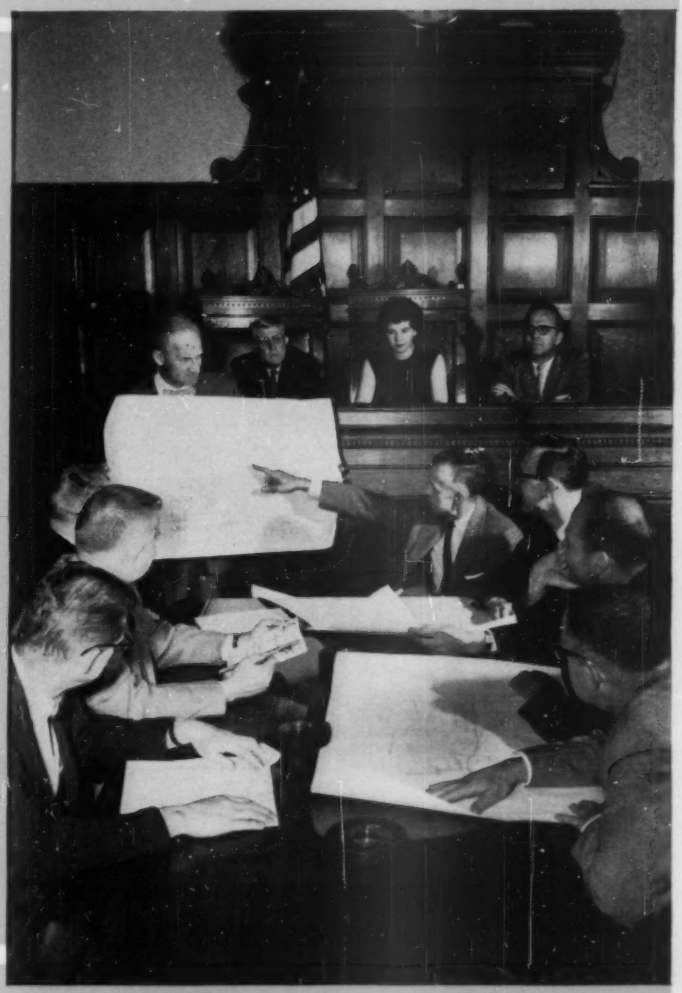
is only as good as the

House Connection

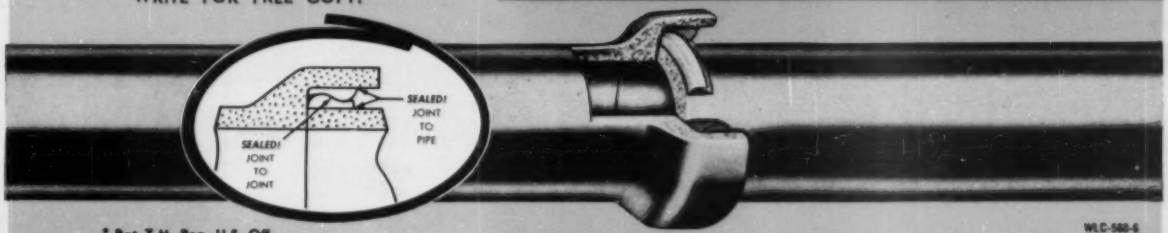
Unless house connections are as good as the main, infiltration can defeat the purpose of the newest, tightest, best engineered sewer system . . . Treatment plants pump huge amounts of ground water, capacity is taxed. Wedge-Lock* Clay Pipe helps cities beat this problem . . . Makes house connections *as good as* the main. Four through six-inch diameter Wedge-Lock gives triple protection against infiltration, exfiltration, roots, helps insure lines as good as the main. Wedge-Lock . . . safe enough to use *under* basement floors. Conforms to ASTM Specifications C 425-58T, Type 1. Put it in *your* plumbing code.

JUST OFF THE PRESS!

Brochure Describing Wedge-Lock Installations



WRITE FOR FREE COPY!



* Pat. T.M. Reg. U.S. Off.

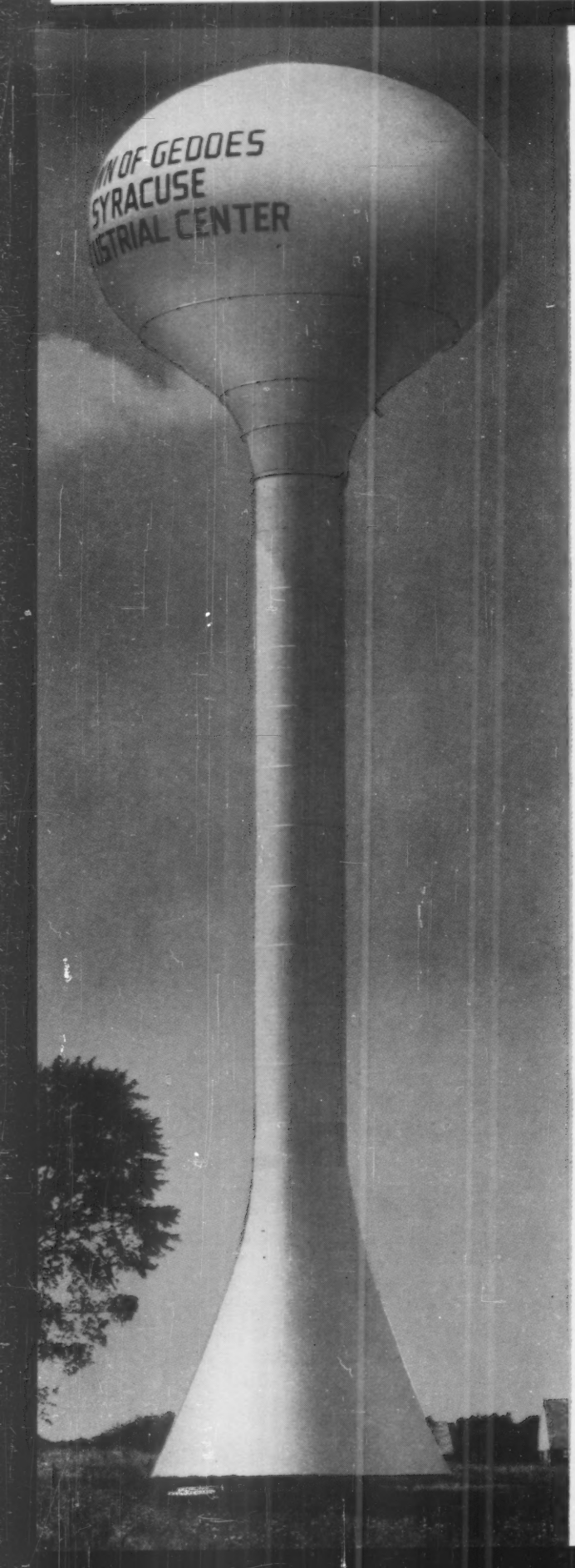
WLC-588-6

Wedge-Lock® CLAY PIPE

THE FACTORY-JOINTED CLAY PIPE AVAILABLE NATIONALLY FROM LOCAL MANUFACTURERS

Write to any of these manufacturers for literature or a Wedge-Lock demonstration

Cannelton Sewer Pipe Company ..... Cannelton, Ind.	The Logan Clay Products Company ..... Logan, Ohio
The Clay City Pipe Company ..... Uhrichsville, Ohio	The Owensboro Sewer Pipe Company Owensboro, Ky.
Graff-Kittanning Clay Products ..... Worthington, Pa.	Pomona Terra-Cotta Company ..... Greensboro, N. C.
Larson Clay Pipe Company ..... Detroit, Mich.	The Robinson Clay Product Company ..... Akron, Ohio
Lehigh Sewer Pipe & Tile Company ..... Fort Dodge, Ia.	Superior Clay Corporation ..... Uhrichsville, Ohio



why Geddes, N.Y. went 14 STORIES HIGH to assure better water service for new industries

PDM
ELEVATED STEEL TANKS

PEDESTAL SPHEROID ELEVATED STEEL TANKS

This 147-foot PDM Pedestal Spheroid—world's highest tank of its type, so far as is known—brings a 500,000-gallon water capacity into balance with Geddes' expanding supply system. Serving the Syracuse industrial area with assurance of ample water facilities for new industries a-coming, the new PDM unit ties in with a 100,000-gallon tank 3 miles away for effective pressure equalization. Is *your* community preparing for increasing water demands? Let a PDM representative work with you, at no obligation.

PITTSBURGH-DES MOINES STEEL COMPANY

Plants at PITTSBURGH, WARREN, BRISTOL, PA. • BALTIMORE • BIRMINGHAM • DES MOINES • PROVO, UTAH • CASPER, WYO. • SANTA CLARA, FRESNO, STOCKTON, CALIF.

Sales Offices

PITTSBURGH (25).....Neville Island
WARREN, PA.....P. O. Box 660
BALTIMORE (26)
P. O. Box 3459, Curtis Bay Station
BIRMINGHAM (8)
P. O. Box 8641, Ensley Station
DES MOINES (8).....1015 Tuttle Street
PROVO, UTAH.....P. O. Box 310
SANTA CLARA, CALIF.....P. O. Box 329
EL MONTE, CALIF.....P. O. Box 2012
NEW YORK (17).....200 East 42nd Street
NEWARK (2).....744 Broad Street
CHICAGO (3).....679 First National Bank Bldg.
ATLANTA (5)..361 East Paces Ferry Rd., N. E.
DALLAS (1).....Suite 1703, Southland Center
DENVER (2).....323 Railway Exchange Bldg.
SEATTLE (1).....500 Wall Street

CATALOGS *for Improved Municipal Services*

Write to address given or circle corresponding number on free post card on page 57.

Tape on a Report

590 The Remington Rand "99" besides performing the standard calculations, on tape, has a control key which excludes some unneeded figures and thus speeds and simplifies operation. For complete information write REMINGTON RAND, ROOM 110-AC, 315 PARK AVE. SO., NEW YORK 10, N. Y.

Power Operated Valve Control

591 One man can operate the hydraulic, truck mounted, valve control made by PAYNE DEAN & CO., CLINTON, CONN. It handles valves from 10- to 60-inches, can be mounted in any truck, has position indicator and a safety device. Write for information.

Dictation Unlimited

592 No matter what your needs for taking dictation EDISON VOICE-WRITER (DEPT. AC-11), DICTATION CENTER USA, WEST ORANGE, N. J., has a device to do it whether it be to record a phone call, memo items out-on-the job, office conference or correspondence. Write for details.

For Speedy Pipe Laying

593 Bell-Tite Joint cast iron pipe can be laid as fast as you can dig a trench. Why? Each joint needs only a single rubber gasket. You just push the bell into the spigot and presto, a bottle-tight joint! For details write JAMES B. CLOW & SONS, INC., 201-299 N. TALMAN AVE., CHICAGO 80, ILL.

7 Chipper Models

594 The seven models of brush chipper offered by MITTS & MERRILL, 1003, S. WATER ST., SAGINAW, MICH. are easy to operate, give greater efficiency with lower upkeep and maintenance costs. Write for details.

Need Municipal Financial Help?

595 The CORPORATE TRUST DIVISION, of the CHASE MANHATTAN BANK, 40 WALL STREET, NEW YORK 15, N. Y. is ready to assist municipal authorities when it comes time to appoint a trustee or fiscal agent for revenue bonds. Write for details.

New Street Lighting Luminaire

596 Here's a residential street lighting luminaire that directs light on street, sidewalks and away from houses, giving nearly three times light six times longer. Write for Bulletin M-250R from GENERAL ELECTRIC CO., SECTION 460-10A, SCHENECTADY 5, N. Y.

Reduce Air Conditioning Costs

597 Now you can economically reduce heat loss through windows and eliminate glare by using new Sun-X Glass Tinting. It is applied quickly to glass, bonds tightly. Write for "Solve Sun Problems with Sun-X55 from AMERICAN GLASS TINTING CORP., P. O. BOX 6565, DEPT. C, HOUSTON 5, TEX.

Cut Grass Cutting Costs

598 The Model F tractor using 3, 5, or 7 gang wing-lift mower units with out-front cutting is offered by JACOBSEN MFG. CO., DEPT. AC11, RACINE, WIS. It is said to give smoother, closer-cut and reduces overlap—saving time.

A Pole for Every Lighting Need

599 The KERRIGAN IRON WORKS, CO., DEPT. A-11, NASHVILLE, TENN. is now offering a variety of poles to suit every street lighting or signaling purpose, in round or octagonal, of steel or aluminum. Write for details.

New Magnetic Drive Meter

600 The BADGER METER MFG. CO., 4545 W. BROWN DEER RD., MILWAUKEE 23, WIS. has recently introduced a new magnetic drive meter, called the Easy-Read, with a disc meter chamber offering long life accuracy. A 4-page bulletin is available.

New Tractor Shovel

601 Newest in the tractor shovel line of the Trojan Div. of the YALE & TOWNE MFG. CO., BATAVIA, N. Y. is model 254. It has a 15,000 pound lifting capacity and is said to give maximum production, job flexibility, excellent stability. Write for details.

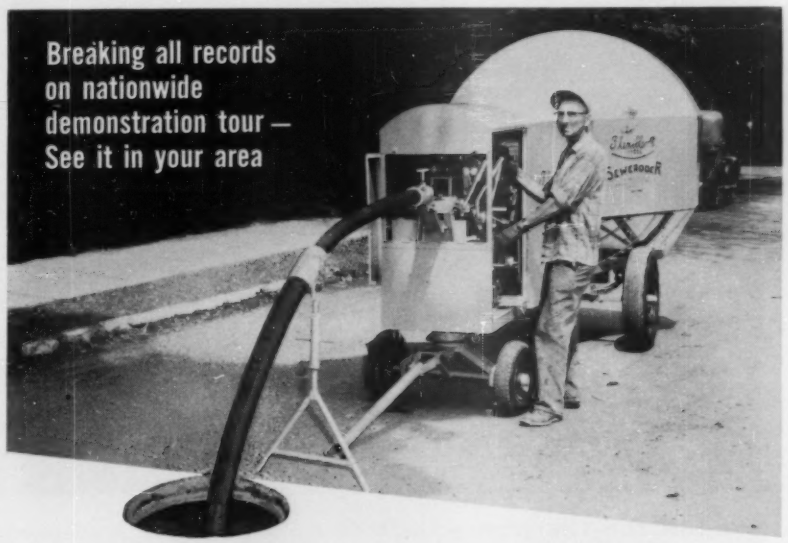
New Aerial Lifts

602 HUNT-PIERCE CORP., MILFORD, CONN. recently introduced a new line of aerial lifts made of fibreglass of exceptional strength, maximum insulation and designed for a wide variety of municipal uses. Furnishing 36- and 40-foot working heights. an added 10 foot height may be gained. Write for details.

Cleaning Sewers

603 Planalyzed Contract Cleaning is the name given by the AMERICAN PIPE CLEANING CO., 1819 NICOLLET AVE., MINNEAPOLIS, MINN. for its plan of carefully engineered sewer cleaning which restores pipe to full capacity. Write for complete details.

(See page 64 for more Bulletins)



SeweRodeR cleans far more sewer per man . . . per day . . . per dollar!

Public officials concerned with greater efficiency and upgrading working conditions in the Sewer Department will want to see a SeweRodeR demonstration when the team comes to their area. They'll see how one operator can rod from manhole to manhole non-stop, reaming out sludge and obstructions and restoring free flow in a matter of minutes. They'll see "case histories" showing the SeweRodeR can save up to $264 per mile in cleaning costs, and pay for itself in six months!

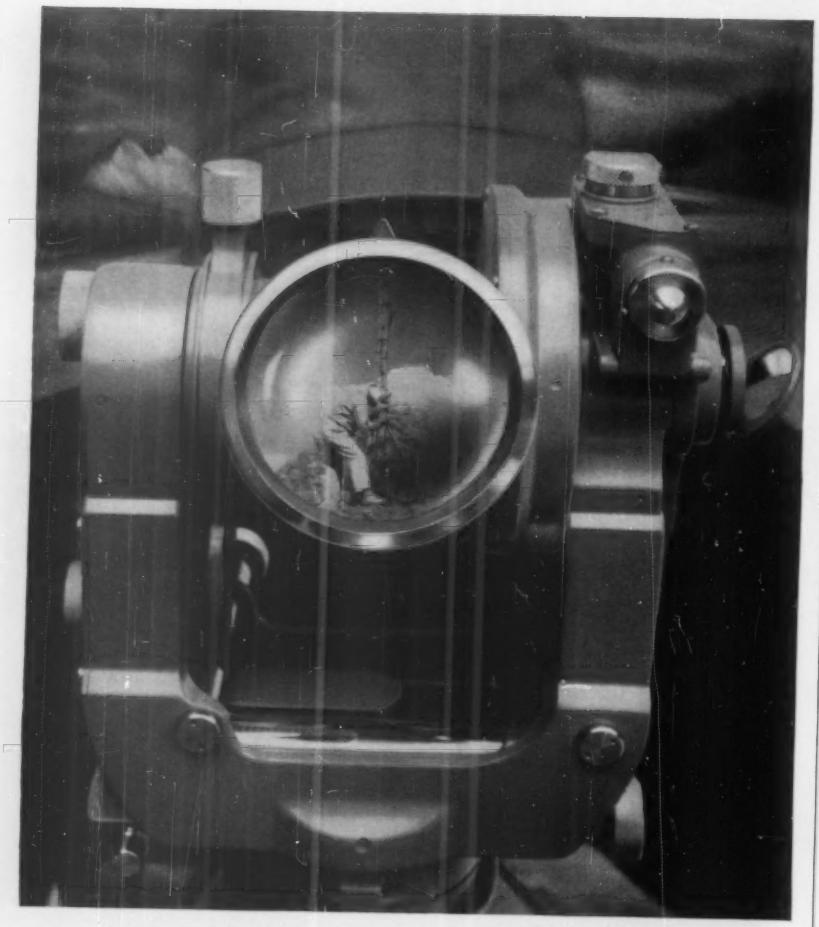
They'll like these exclusive advantages: positive chain and dog non-slip rod drive; audible safety clutch to protect tools, pipe and machine; push-pull power from 4 to 4,000 lbs., instantly reversible; ability to work water-filled manholes; and many more.

FLEXIBLE INC.

415 So. Zangs Blvd., Dallas, Texas
3787 Durango Ave., Los Angeles 34, Calif.
1005 Spencerville Road, Lima, Ohio

HOW YOU CAN SEE **SeweRodeR** IN ACTION

Write for date of demonstration in your area. We are making arrangements in many cities and will notify you well in advance. Be prepared to compare your present sewer cleaning methods and costs with SeweRodeR. You may discover an entirely new approach to saving important budget money!



RECOGNIZED THE WORLD OVER for highest accuracy, convenience, and unequaled precision throughout the instrument. MOST WIDELY USED for first and second order triangulation, and in industry and laboratories where extremely accurate angle measurements are required. Accessories are available for astronomical use.

WILD
HEERBRUGG

WILD T-3
PRECISION THEODOLITE
One of a *complete* line of superb instruments for Surveying, Photogrammetry and Microscopy. *Write for booklet T-3.*

WILD HEERBRUGG INSTRUMENTS, INC. • PORT WASHINGTON, NEW YORK
In Canada: Wild of Canada Ltd., 157 Maclaren St., Ottawa, Ontario

MONEY SAVING *catalogs*

Write to address given or circle corresponding number on free post card on page 57.

Blow Snow Away

604 A snowblower can clean your streets full width, avoid clogging driveways, convering hydrants and do it quickly, efficiently and economically, according to SICARD INDUSTRIES, INC., 753 W. MAIN ST., WATERTOWN, N. Y. Write for descriptive literature.

For Concrete Streets That Last

605 When you build concrete streets you want them to last. Reinforcing with welded steel wire fabric will reduce stresses about 30% and give a surface that will remain smooth and serviceable for many years. For details write AMERICAN STEEL & WIRE, 614 SUPERIOR AVE., N. W., CLEVELAND 13, OHIO.

Rugged Manual Parking Meter

606 If you need a rugged, manually operated parking meter that will give long service in any climate with minimum maintenance you will want to write for details from MI-CO PARKING METERS, P. O. BOX 668 A, COVINGTON, KY. It has only six moving parts and is reported tamper-proof.

Submersible Pump for Lift Stations

607 The WEIL PUMP CO., 1518A NORTH FREMONT ST., CHICAGO 22, ILL. is offering a hermetically sealed, submersible non-clog sewage and sump pump in a wide range to select to fit your requirements. Send for *Bulletin* SE-860 for complete details.

Stops All Traffic

608 RAD-O-LITE provides fire apparatus personnel with a method of controlling traffic signals from their moving vehicles causing all of them to turn red to insure a safe, speedy right of way. For details write RAD-O-LITE, INC., P. O. BOX 306, 1202 MYRTLE ST., ERIE, PA.

Guard Against Conflagrations

609 When seconds count you will be grateful your city is adequately equipped with fire alarm boxes. THE GAMEWELL CO., 1268 CHESTNUT ST., NEWTON UPPER FALLS 64, MASS. would like to help you to achieve this protection. Write for details on its Coded Master Boxes.

Low Cost Insect Control

610 Several cities are now using an inexpensive insect spraying method. They use a portable sprayer mounted on a Cushman 780 Truckster. For information on how to use Truckster for many light hauling and maintenance jobs write CUSHMAN MOTORS, 946 N. 21 ST., LINCOLN, NEBR.

Tractor Engine Power

611 "Engine Power" is the title of a new brochure by the ENGINE DIV. OF CATERPILLAR TRACTOR CO., PEORIA, ILL. which explains that it is not the hp rating of a tractor engine, but the hp it delivers on the job that makes it a bargain.

Roller-Grader Rental Service

612 Want a grader or roller with stamina and reserve power that will work at full capacity all day long, setting new performance records? You can have them, on a rental basis. Write GALION IRON WORKS & MFG. CO., GALION, OHIO for details.

(See page 67 for more Bulletins)

Stretching the long arm of the law in Milwaukee

Milwaukee, Wisconsin — This metropolitan area of over a million is justly proud of its traffic safety record and its police department. In 1959, the city had the lowest fatality record ever achieved by a community over 250,000. Service and maneuverability of its 80 Solos and 37 Servi-Cars are cited as important factors in Milwaukee's effective traffic control program.

OPENING DAY FOR THE BRAVES — It takes only an hour and a half to park approximately 10,000 cars at Milwaukee's County Stadium when officers mounted on Harley-Davidson Solos and Servi-Cars are on the job.

The force that made Milwaukee famous...

moves on Harley-Davidson Servi-Cars and Solos

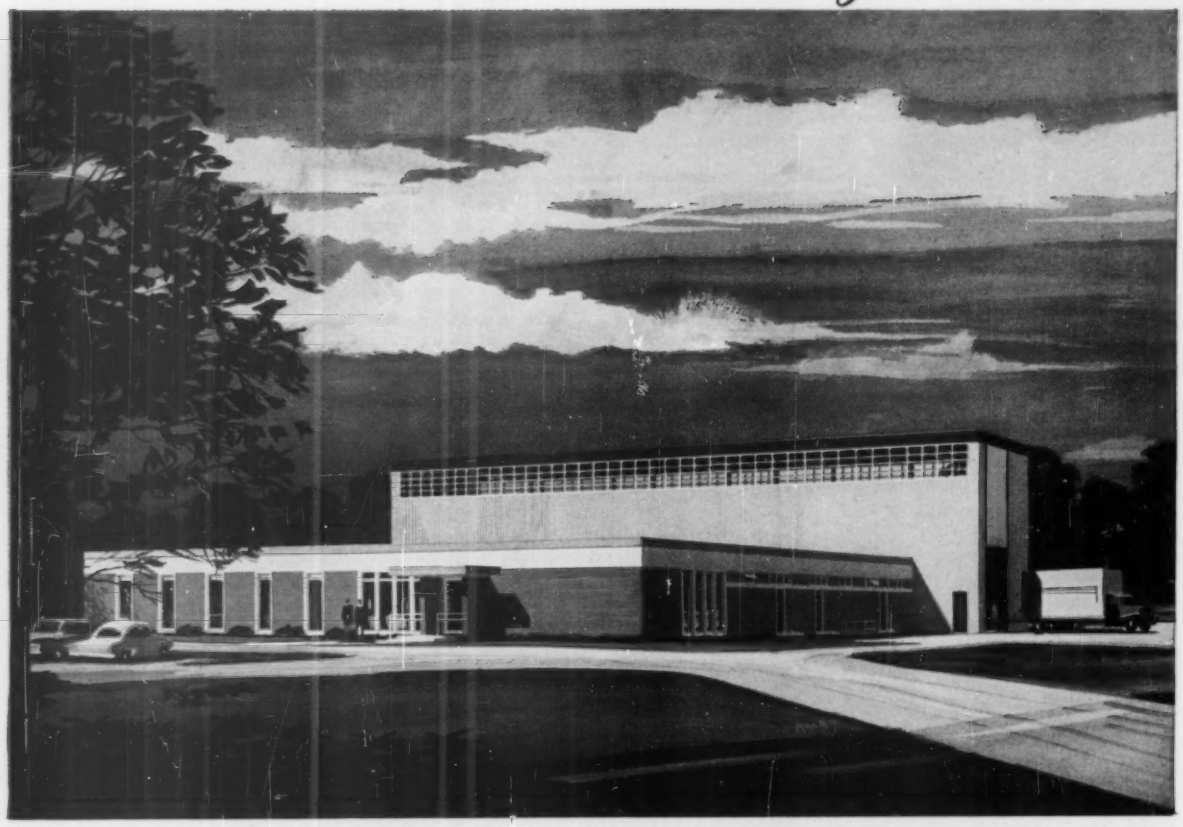
Mobility is the key to successful law enforcement! Harley-Davidson police motorcycles supply this maneuverability when only minutes count. They stretch the arm of the law to reach any part of the community quickly whether the trouble spot is traffic, crime, fire or other emergency.

Harley-Davidsons *balance* your effectiveness: *Solos* are the ideal pursuit vehicle. Nothing stops these maneuverable two-wheelers from arriving on the scene of trouble . . . fast. Busy *Servi-Cars* are triple-threats for traffic control . . . parking and meter work . . . residential patrolling. Call your Harley-Davidson dealer, or write Harley-Davidson Motor Co., Milwaukee 1, Wisconsin, for free folder on effective police mobility — the Harley-Davidson way.

HARLEY-DAVIDSON

Police Motorcycles

LOCK JOINT PIPE COMPANY *Proudly Presents*



ITS *New*, LARGER AND IMPROVED

RESEARCH AND DEVELOPMENT CENTER

Although Lock Joint Pipe Company has maintained its own research and testing laboratory for many years, the Company's growth and insistence on even higher quality products and improved manufacturing techniques have demanded the expansion of these facilities. For this reason it has erected a new research center featuring the latest equipment and staffed with scientists, engineers and trained technicians.

The members of the Research and Development Division, housed in this new half-million dollar center, stand guardian over the high quality of all present Lock Joint products and institute and evaluate future product developments. For it is the Company's firm conviction that only by strict quality control can its products' superiority be maintained . . . and that only through the development of even better materials and more efficient manufacturing techniques can Lock Joint retain its position at the head of its field.

LOCK JOINT
CONCRETE PIPE

LOCK JOINT PIPE CO.

East Orange, New Jersey

Sales Offices: Chicago, Ill. • Columbia, S. C. • Denver, Col. • Detroit, Mich. • Hartford, Conn. • Kansas City, Kan. • Perryman, Md. • St. Paul, Minn. • Winter Park, Fla.

Pressure • Water • Sewer • REINFORCED CONCRETE PIPE • Culvert • Subaqueous

CATALOGS *for Improved Municipal Services*

Write to address given or circle corresponding number on free post card on page 57.

Rigid Pipe for Submersible Pump

613 To save 50- to 75% of costs on installation of submersible jet pumps write for information from MARBON CHEMICAL DIV., BORG-WARNER, WASHINGTON, W. VA. on its rigid pipe made of Cycolac. Said to out-perform conventional pipe, it is rustproof, highly tensile, swiftly installed.

Paint Traffic Lines in Freezing Weather

614 Now you can add four months to your striping season with an automatic Paintemp Heater made by WALD INDUSTRIES, INC., HUNTINGDON, PA. It promises uniform application and film thickness regardless of temperature and a shorter drying time. Write for descriptive literature.

Asphalt Patch Plants

615 A new 32 page brochure describes "BatchOmatic," Semi-automatic and "Power Control" asphalt batch plants made by BARBER-GREENE CO., 400 N. HIGHLAND AVE., AURORA, ILL. New features are 10% more tonnage, 25% more weight hopper capacity and "Dynamix" pugmill. Write for your copy.

City Seals Reproduced

616 You can promote pride in your community by having your official seal on all your motored vehicles. Write CALIFORNIA METAL ENAMELING CO., 6904 EAST SLAUSON AVE., LOS ANGELES 22, CALIF. Its art department will reproduce your seal in permanent colorful porcelain enamel.

Traffic Lane Markers

617 Flexible markers made of Hypalon that automatically raise and lower to vary traffic in peak hours and Fixatron markers for permanent lane separation are made by NATIONWIDE TRAFFIC ENGINEERING CO., INC., 1823 SILVER AVE., ABINGTON, PA. Write for details.

Ball Valves for Water-Sewage Works

618 The List 26 valves made by WILLAMETTE IRON AND STEEL CO., 2800 N. W. FRONT AVE., PORTLAND 10, ORE. is being used for a wide range of water and sewerage services, such as: pump discharge, pressure relief, pressure regulating and emergency line check, altitude and stop. Write for complete details.

Tapping Sleeves For Water Pipe

619 The MUELLER CO., DECATUR, ILL. makes tapping sleeves and valves which provide means of running a lateral with less inconvenience. The tapping sleeve strengthens the main at the point of connection. One joint sleeve will fit all classes of cast iron pipe regularly used. Write for details.

Concrete Curb and Sidewalk Forms

620 For information about a complete line of forms and finishing tools for the construction of curbs, curb and gutter and sidewalks write the HELTZEL STEEL FORM AND IRON CO., 1750 THOMAS RD., WARREN, OHIO. They also offer storage bins for materials used in highway maintenance.

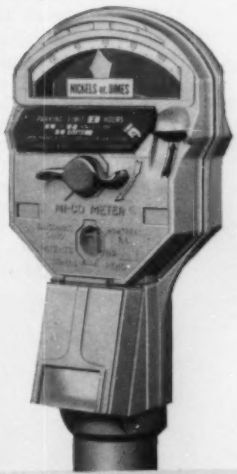
(See page 69 for more Bulletins)

ONLY SIX MOVING PARTS

MI-CO PARKING METERS

Function Every Day, Year After Year

Buy the rugged MI-CO manual meter that's built to give you long service in any climate, any season, with minimum down time, lowest maintenance cost. Only six moving parts! Made of stainless steel, clock brass and brass forgings, or die castings. Helps control traffic in any situation; adjustable to any number of hours; takes 1¢ to 25¢ in same weatherproof coin slot. Scientifically engineered for longer, trouble-proof, profitable service. Also available: Twin automatics; exclusive tamperproof coin collection system. Write us for the whole MI-CO story before you buy.

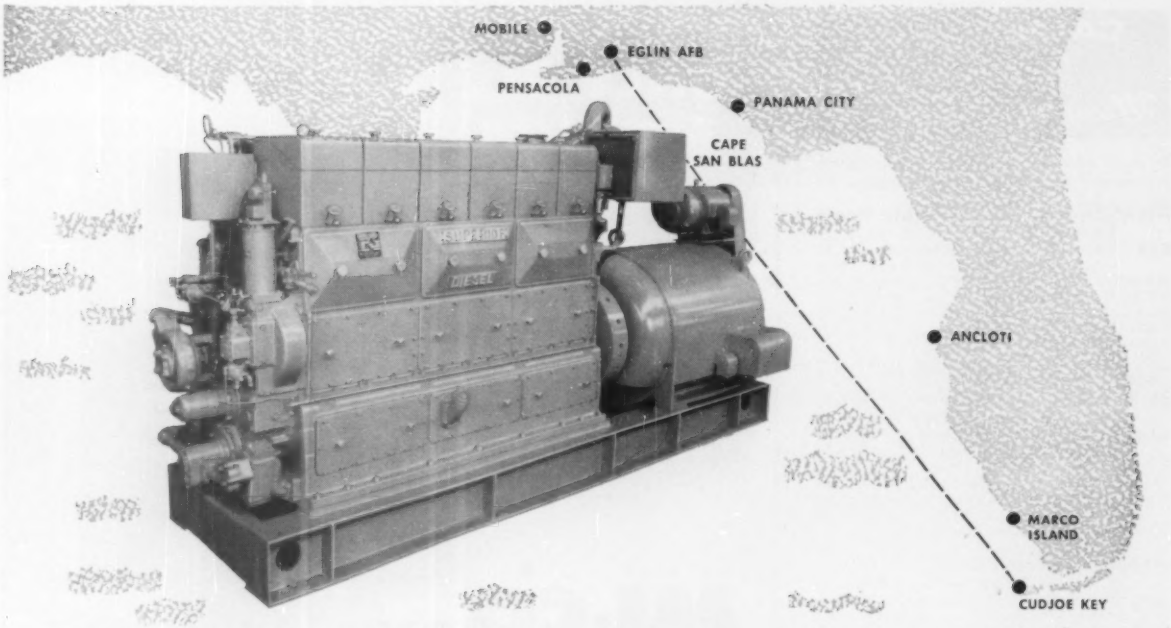


A Symbol of M ABC *High Quality*

MI-CO PARKING METERS, P. O. BOX 668-A, COVINGTON, KENTUCKY

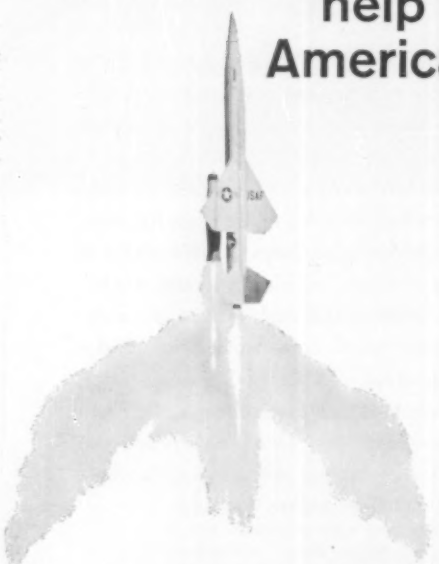
(The Michaels Art Bronze Co., General Offices and Plant, Erlanger, Kentucky)

OTHER MICHAELS PRODUCTS: Architectural Metal • Curtain Walls
Display Cases • Reversible Windows • Tablets • Memorials • Signs



WHITE SUPERIOR ENGINES

help "keep score" at one of America's newest missile ranges



The Eglin Gulf Test Range (EGTR), consisting of five missile tracking stations, extends 450 miles from Eglin AFB, Florida down the west coast to Cudjoe Key, 23 miles east of Key West. At Eglin AFB and at three of the five tracking stations, power is supplied by White Superior Model 40-SX-6 engine-generator sets. Each of the five Superior engines on EGTR develops 361 BHP to produce 250 KW. At Cudjoe Key (shown below), two of the Superiors provide power for range safety equipment, trajectory measuring systems, drone control and telemetering devices, from which data is sent back to Eglin.

America's newest missile range joins an impressive list of Superior-powered U.S. defense installations, which include the "Texas Towers," portions of "DEW" line and the "SAGE" project, Atlas and other launching stations, and other missile tracking ranges. Government acceptance of White Superior engines for these installations is proof that Superior meets all requirements for rugged dependability, trouble-free maintenance and maximum fuel economy. Superior engines, from 215 to 2150 HP or 150 to 1500 KW, can likewise be custom-engineered to meet your exact requirements, including automatic, unattended or remote controlled operation. Write for complete information today!

Superior ENGINES · ATLAS Imperial DIESEL ENGINES · White DIESEL

White Diesel

WHITE DIESEL ENGINE DIVISION
THE WHITE MOTOR COMPANY

Plant and General Offices: Springfield, Ohio

U.S. Air Force Photos

FREE catalogs
You will find of interest

Write to address given or circle corresponding number on free post card on page 57.

Easy-to-Lay Pipe
621 The U. S. PIPE AND FOUNDRY CO., BIRMINGHAM 2, ALA. says that its Tyton Joint pipe "isn't quite as easy to install as falling off a log. But almost!" It has one simple accessory, no nuts, bolts, pots or ladles and few weather delays. Write for details.

Coal For Electrical Power
622 Do you need a dependable, economical supply of coal for your power plant? The CHESAPEAKE AND OHIO RAILWAY, TERMINAL TOWER, CLEVELAND 1, OHIO would like to tell you how it can supply that need with its giant coal car fleet.

Salvage Covers for Fire Departments
623 If your fire department needs salvage covers that are flameproof, completely water resistant, unaffected by mildew and rot, write FULTON COTTON MILLS, P. O. BOX 1726, ATLANTA, GA. for information about their nylon covers.

Booklets on Asphalt Paving
624 . . . will give you helpful information for all types of asphalt paving of streets, airports and parking areas, and may be had by writing TEXACO INC., ASPHALT SALES DIV., 135 E. 42nd St., New York 17, New York, Asphalt gives a resilient, smooth surface.

Air Valves for Safety In Line Operations
625 For safety in pipeline operations the MULTIPLEX MFG. CO., DEPT. E, BERWICK, PA. recommends that you use their Crispin air valves which have these advantages: simplified construction, easy accessibility, durability, minimum maintenance, efficient operation. Write for details.

Adjustable Traffic Signals
626 Would you like completely adjustable traffic signals? TRAFFIC SIGNALS, INC., 222 BEACH ST., SHREVEPORT, LA. points out that its signals feature full circle adjustability through tri-stud mountings between sections and on bracket mountings. Write for complete details.

New Tractor-Shovel Bulletin
627 This 16-page catalog gives full details on the new 9000-pound capacity Case W-12 loader, a 4-wheel drive, rear-wheel steer unit giving specifications and describing optional and interchangeable equipment. Write DEPT., K1560, J. I. CASE CO., RACINE, WIS.

Sewage Ejectors
628 For information on uninterrupted, economical, sewage lift service write BLACKBURN-SMITH MFG. CO., INC., 57 GARDEN ST., HOBOKEN, N. J. for Booklet S-55. The company promises no pump troubles, no clogging or cleaning, no complex piping, low maintenance.

Map as You Grow
629 AERO SERVICE CORP., 210 E. CORTLAND ST., PHILADELPHIA 20, PA. is offering a "pay as you grow" plan to help cities meet their mapping and budget needs. They offer to show how you can have up-to-the-minute maps under this plan. Write for brochure.

(See page 72 for more Bulletins)

FOX spreader feature No. 5

Sturdy cover grids of ⅜" rods on 3" centers break up lumps . . . allow only spreadable materials to pass through . . . prevent damage.

If you can load it— you can spread it

It's r-r-really c-cold out! Temperature's below zero and streets are slick with packed snow. That means trouble with a capital T . . . not only for motorists, but for spreading equipment. Stockpiles of sand freeze up . . . get so you're loading lumps that can really play havoc with most spreaders. If you use cinders or bank-run aggregate the problem is constant.

The solution—Fox Mountable Material Spreaders! Four big, heavy-duty models . . . 5 to 12 cu. yd. capacities. Install on standard dump bodies in only 15 minutes (take 'em off just as fast). You load through sturdy hinged cover grids. These break up or screen out lumps . . . allow only spreadable material, easily broken by auger feed, to pass through. *So, if you can load it you can spread it.*

Whether you're spreading sand, cinders, chips, salt or calcium chloride . . . it's a one-man job. He operates the Fox Spreader from a Dash-Mounted Electric Control Panel inside the cab. Spreads evenly in widths from 8 to 40 feet . . . at speeds from 5 to 40 miles per hour. The heavy-duty feed auger handles all materials with ease . . . does away with chains and aprons . . . saves 90% on maintenance.

To see all the Fox Features ASK FOR A DEMONSTRATION

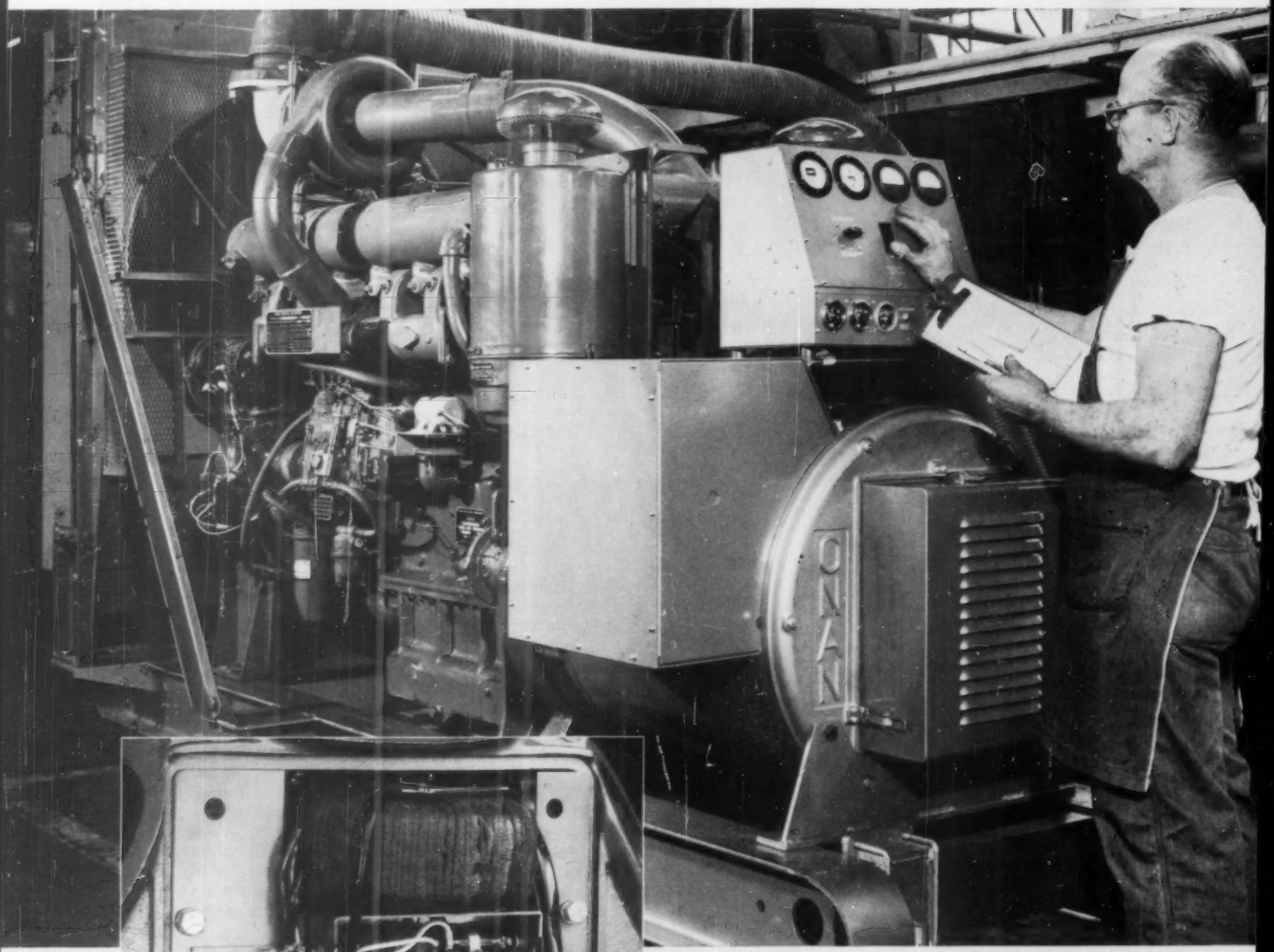
The Fox Materials Spreader will cut your labor, time and equipment expenses to the bone. A catalog . . . case history reports . . . even a no-obligation demonstration are yours for the asking. *Write, call or wire collect for the name of the nearest Fox distributor, who will gladly give you a demonstration.*

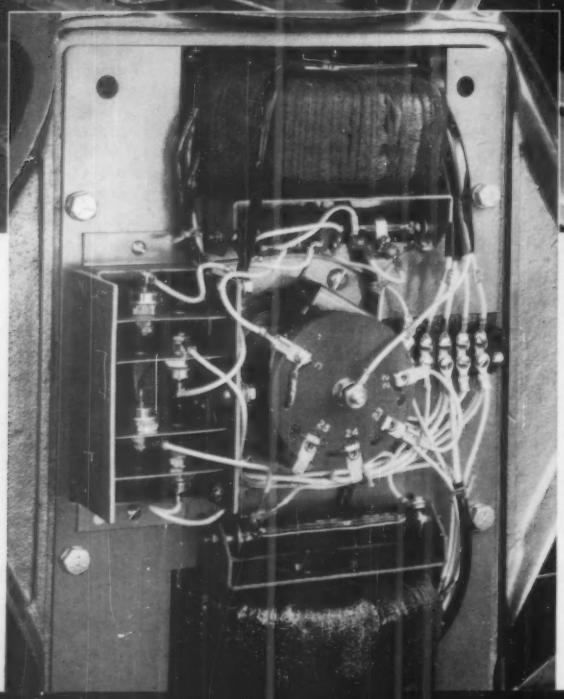
FOX RIVER TRACTOR CO. ROAD MACHINERY DIVISION

Dept. R15, 1020 N. Rankin St. • Appleton, Wisconsin • Phone: REgent 4-1451

Pour on the load!

recovers voltage





Use Magneciter-equipped Onan for standby or primary power. Takes maximum starting load without hesitation! Available on all diesel and gasoline-powered Onan Electric Power Plants rated at 25 KW and up.

Static exciter and magnetic amplifier and regulator of Magneciter Generator with cover removed. No moving parts in this *static* exciter and regulator. No extra sensitive adjustments needed. Magneciter means reliability!

Onan Magneciter
within 1 second

Even when maximum starting load is applied, Onan Magneciter gives voltage recovery 5 times as fast as ordinary rotating exciter generator

When a heavy starting load causes a voltage dip, the Onan Magneciter Generator restores full voltage within one second. Old-fashioned rotating exciter generators take more than five times longer. Furthermore, Onan Magneciter has no moving parts in its exciter and voltage regulator, thus eliminating hundreds of potential causes of wear.

It's no longer necessary to buy a generator much larger than your normal power needs just to get enough extra power for the heavy drain of starting motors. Onan gives you this margin of power, builds it into every Magneciter-equipped Onan Electric Plant.

Every Onan Electric Plant is given hours of running-in and testing under load before it is shipped. An independent testing laboratory retests Onan Plants and certifies Onan testing methods—double assurance that every Onan lives up to its nameplate rating. Only then can Onan qualify for its Performance Certification.

Every Onan is ready to give you long-lasting performance and operating economy. See your Onan representative. You'll find him in the Yellow Pages. Or write direct.

ONLY ONAN GIVES YOU THIS CERTIFICATION

PERFORMANCE CERTIFIED
We certify that when properly installed and operated this Onan electric plant will deliver the full power and the voltage and frequency regulation promised by its nameplate and published specifications. This plant has undergone several hours of running-in and testing under realistic load conditions, in accordance with procedures certified by an independent testing laboratory.
D. W. ONAN & SONS INC.
Minneapolis 14, Minnesota
Onan

Onan®

World's Leading Builder of Electric Power Plants

D. W. ONAN & SONS INC., 2682 UNIVERSITY AVE. S.E., MINNEAPOLIS 14, MINN.

FREE catalogs

Write to address given or circle corresponding number on free post card on page 57.

Protects Freshly Painted Traffic Lines—Free Sample

630 Z-Bar all-rubber traffic markers hug the pavement, despite their light weight. They're brightly colored, easily seen, extremely low cost. And should they be struck by a vehicle will just bounce, without injury to car or passing pedestrian. For details, free sample, and facts on other traffic aids, write TRAFFICAIDE CORP., CANOGA ST., AUBURN, N. Y.

Tapping Machines

631 . . . are just one of a complete line of quality water service products offered by the GENERAL PRODUCTS DIV., HAYS MFG. CO., ERIE, PA. Write for literature describing the full line.

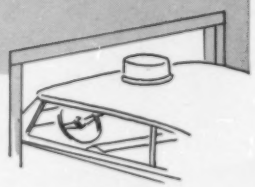
Playground Equipment

632 For unique space saver slides, as well as swings, seesaws, and playground equipment that is strong and safe, write to J. E. BURKE CO., P. O. BOX 549, DEPT. 41, FOND DU LAC, WIS. for complete information.

Multi-Person Showers

633 Here's how to get multiple shower facilities at lower cost. BRADLEY WASHFOUNTAIN CO., 2333 W. MICHIGAN ST., MILWAUKEE 1, WIS. offers multi-person shower columns providing five separate showers. For details write for *Bulletin* H-1322.

LONGER SIGHT...



Only the NEW DIETZ

REVOLVING LIGHT gives you all these advantages

- Greater lens area—complete 360° visibility over greater distances
- Lower height—only 8¾ inches
- The frequency beam can be 30, 60 or 120 per minute according to number of sealed beam bulbs installed—one, two or four bulbs respectively.
- Dome lens easy to remove—only necessary to remove one brass bolt
- Rust-proof chrome-plated brass base and lens rim mounts on thick rubber pad—conforms to contour of car roof
- Shock-resistant lucite dome available in red, amber, blue or clear.

Go DIETZ and you go Safely

Write for complete details

R. E. DIETZ COMPANY, 225 Wilkinson St. Syracuse 1, New York

Metal Pole Base for Outdoor Lighting

634 For a rugged support for threaded pipe uprights used in street lighting, with a chamber for splicing and grounding, write HOPE ELECTRICAL PRODUCTS CO., 53 LONG AVE., HILLSIDE, N. J. for Bulletin #25.

New Tandem Rollers

635 A new bulletin is available describing KT-24E (8 to 12 Ton) and KT-25E (10 to 14 ton) Deluxe Tandem Rollers made by BUFFALO-SPRINGFIELD CO., SPRINGFIELD, OHIO. Equipped with torque converter they provide widely variable speeds with better control, and full visibility.

New Guide for Traffic and Auto Parking

636 Rugged, dependable Flex-O-Guides are used for traffic delienation and parking area control. Suggested applications, features, specifications and installation details are given in literature, available from B. AND G., INC., 4331 ELSTON AVE., CHICAGO 41, ILL.

60-Inch Rotary Mower

637 The belly-mount Urban Squire is geared to fit "Cub" and "Lo-Boy" Farmall tractors and can mow from 15 to 30 acres per 8-hour day. Features, details and operating advantages are detailed in literature. Write SERVIS EQUIPMENT CO., 1000 SINGLETON BLVD., DALLAS, TEXAS.

Emergency Traffic Controller

638 An emergency traffic controller can put back and keep any intersection in operation in the event of failure of the regular controller. It's inexpensive, can be installed in less than a minute, can save lives. For details, write ARNOLD ELECTRIC CO., WINFIELD, ILL.

Fire Hydrants

639 The Mathews flange barrel fire hydrant comes with or without breakable flange and stem coupling, has a revolving head plus other features designed to give water at full pressure. For details write R. D. WOOD CO., PUBLIC LEDGER BLDG., INDEPENDENCE SQ., PHILADELPHIA 5, PA.

Asbestos-Cement Sewer Pipe

640 Municipalities planning to extend their sewer lines should write KEASBEY & MATTISON CO., DEPT. P-5100, AMBLER, PA., for information about their Asbestos-Cement Sewer Pipe which is easy to lay, requires fewer lift stations and lower pumping costs.

Chemical Feeder

641 The Omega Rotodip Liquid Feeder is a wide-range, precision, corrosion-resistant feeder, handles diluted or concentrated acids, alkalies, or slurries for water and sewage treatment and will operate at low or high capacities. Write B-I-F INDUSTRIES, P. O. BOX 1342, PROVIDENCE 1, R. I. for your copy of *Bulletin* Ref. No. 0065.20-1.

Mix-Match Traffic Signals

642 The EAGLE SIGNAL CO., MUNICIPAL DIV., DEPT. AC-860, MOLINE, ILL. now offers both 8- and 12-inch traffic signals that may be mixed, or matched for harmonious appearance and to suit your signal needs. Write for details on KB170 and KB380 series.

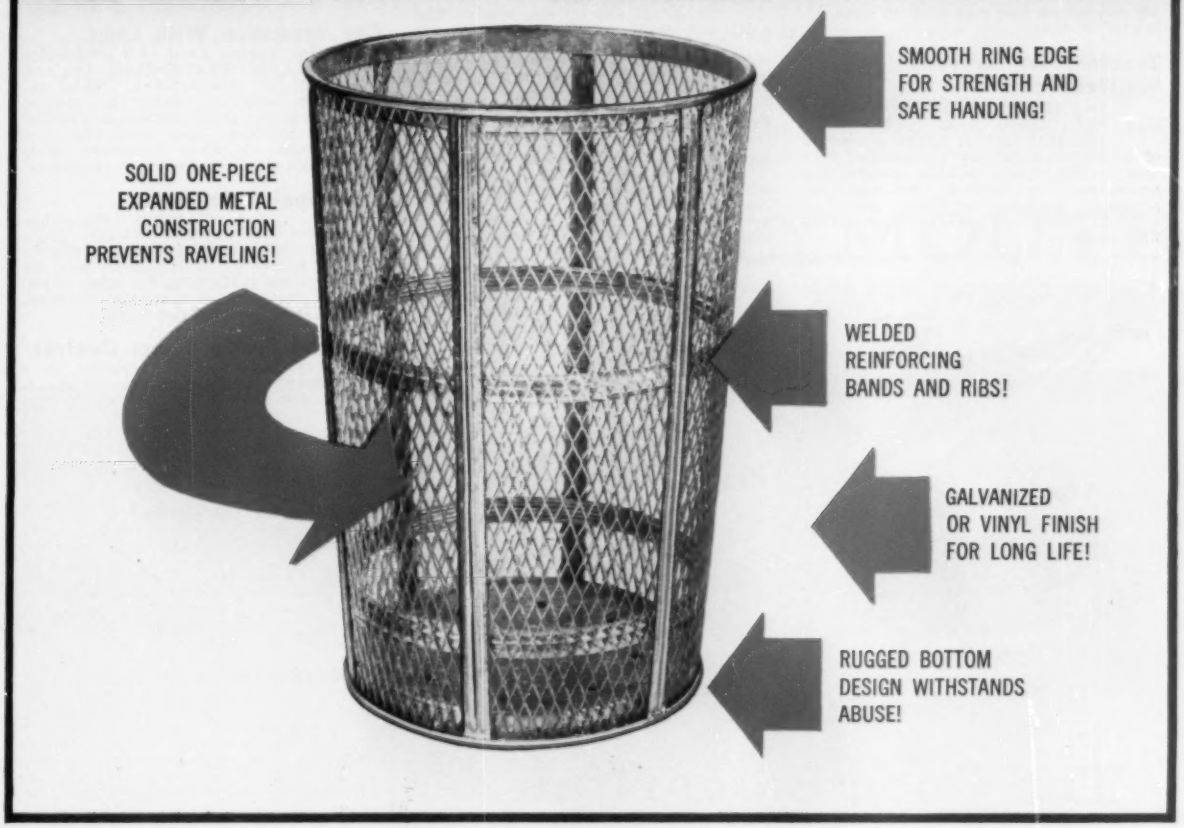
Utility Tractor

643 Here is a utility tractor you can move to your stockpile, reverse, spot load quickly, smoothly. It turns sharply, power steering provides muscle, its wheel base gives stability, its shuttle clutch is swift and smooth. For details write ALLIS-CHALMERS MFG. CO., MILWAUKEE 1, WIS.

(See page 74 for more Bulletins)

Wheeling

WHEELING REFUSE CONTAINERS


SMOOTH RING EDGE FOR STRENGTH AND SAFE HANDLING!
SOLID ONE-PIECE EXPANDED METAL CONSTRUCTION PREVENTS RAVELING!
WELDED REINFORCING BANDS AND RIBS!
GALVANIZED OR VINYL FINISH FOR LONG LIFE!
RUGGED BOTTOM DESIGN WITHSTANDS ABUSE!

Lasts and lasts!

Here's the rubbish basket that keeps on serving long after most others are gone! That's because this Wheeling Expanded Metal Rubbish Basket has *all* the advantages shown above. More than that, it has an attractive open mesh that actually encourages its use.

Wheeling is ready to serve you with America's most complete line of galvanized ware. Get the full story this week from your Wheeling distributor, warehouse or sales office. Wheeling Corrugating Company, Wheeling, West Virginia.

Steel

WHEELING CORRUGATING COMPANY · IT'S WHEELING STEEL!

Immediate delivery on all stocked items from these warehouses: *Boston, Buffalo, Chicago, Columbus, Detroit, Kansas City, Louisville, Minneapolis, New Orleans, New York, Philadelphia, Richmond, St. Louis.* Sales Offices: *Atlanta, Houston.*

Other Wheeling Products for Municipal use include:

Utility Basket is light, yet strong. Easy to carry. Extra handy for collecting all types of litter.

Heavy-Duty Mop Bucket has tough, birch rolls, large foot-pedal and positive - pressure wringer.

Heavy-Duty Pail is made of heavy-gauge steel so it can withstand continuous, extra-rough use.

Heavy-Duty Can has no rivet holes to cause rusting ... gives both strength and economy of steel.

Swing Door Cover with heavy-duty can is ideal container for indoors or out. Large door openings.

FREE catalogs

Write to address given or circle corresponding number on free post card on page 57.

Tractors for Grounds Maintenance

644 The TRACTOR AND IMPLEMENT DIV., FORD MOTOR CO., BIRMINGHAM, MICH. offers a variety of attachments for its Workmaster tractors to fill most grounds maintenance needs such as mowing, leaf mulching, sweeping, spraying, fertilizing, post hole digging, snow and soil handling. Write for details.

Low Cost Shelters

645 If cost is a factor you may find structures offered by AIRSHELTERS, INC., 9 OVERWOOD RD., AKRON 13, OHIO of interest. Made of plastic coated fabric, of spherical shape, they depend on air for support.

Reline Pipe in Place

646 To get details on this system that will increase flow, cut pumping costs by cleaning your cast iron, steel, concrete or wrought iron pipe lines write to PIPE LININGS INC., 2414 E. 223 ST., WILMINGTON, CAL.

For Incinerator Economy

647 GENERAL REFRACTORIES CO., 1520 LOCUST ST., PHILADELPHIA 2, PA. is offering Carbex AP bricks and briklok air setting, fireclay-base mortar for use in incinerators where firebrick must withstand rough service or where clinkers have a tendency to form.

Quick, Dependable Ice Control

648 In less than 15 minutes, a dump truck can be ready to roll as an ice-control unit using a Model K-S S-C Spreader (for salt sand and cinders) made by BAUGHMAN MFG. CO., INC., 307 SHIPMAN ROAD, JERSEYVILLE, ILL. Write the company for illustrated *Folder* A-150 to learn about it.

Cut Vandalism With Light

649 Floodlighting can cut robberies 65%. WIDE-LITE CORP., P. O. BOX 191, HOUSTON 1, TEXAS recommends protective lights in storage areas, jails, and public buildings. Consisting of a mercury vapor lamp plus two incandescents, it gives maximum light, broad light pattern, breakage resistance.

Municipal Auto Fleets

650 . . . you will want information from the FLEET SALES DIV., STUDEBAKER-PACKARD CORP., SOUTH BEND 27, IND. about how its Lark cars are performing for other cities. The '61 line gives even greater economy, performance, comfort and safety.

Arterial Traffic Signal Control

651 Traff-O-Matic (TM) System is a simpler traffic actuated control. It keeps track of the number of vehicles in two directions of traffic flow and automatically selects the best timing for each. For details write AUTOMATIC SIGNAL DIV., EASTERN INDUSTRIES, INC., NORWALK, CONN.

Playground Equipment

652 Sturdily constructed, imaginatively designed playground equipment, including climbers, merry-go-rounds, swings, teeters, tennis, volley and football posts, and baseball back stops, is being offered by EVERWEAR MFG. CO., 534 W. 12 ST., NEWPORT, KY. Write for descriptive folder.

To Supply Increased Water

653 . . . you may need larger water storage facilties. PITTSBURGH-DES MOINES STEEL CO., PITTSBURGH, PA. would be glad to consult with you, at no obligation to you, to help work out your elevated storage needs. For help or information write the company.

Strengthens Concrete Corners

654 If you are planning any municipal concrete structures you will want information about Ekonomy-Former, a corner former that adds strength and prevents stripping on corners of concrete structures. WALJOHN WATERSTOP, INC., 400 88 ST., BROOKLYN 9, N. Y. will gladly send information.

Plastic Posts Guide Traffic

655 If you need a way to eliminate confusion and guide traffic safely into difficult areas, Safe-T-Posts made of tough, colored plastic are an answer. Attach $1 to your letterhead to RADIATOR SPECIALTY CO., CHARLOTTE, N. CAR. for sample.

TV Detects Pipe Breaks

656 Wtih closed circuit TV you can now see what the trouble is and where in pipe as small as 4-inches in diameter and quickly reach the seat of the problem. For details on pipe inspection by TV write NATIONAL POWER RODDING CORP., 1000 S. WESTERN AVE., CHICAGO 12, ILL.

Quality Submersible

657 When a pump operates down-a-hole it must be dependable. For information about submersible pumps that are sealed for life with no maintenance, noise, pump house needed and no danger of vandalism or contamination write BYRON JACKSON PUMPS, INC., P. O. BOX 70, LAWRENCEBURG, IND.

(See page 76 for more Bulletins)

The Good Samaritan

We lay no claim to exclusive virtue, nor any patent rights on high moral principles. But we humbly endorse the "Golden Rule" because we have seen the effects of its application to our own business.

Years ago as a struggling new foundry, M & H designed and made a better valve and hydrant. Then, and many times since then, we received most valuable help and encouragement from water works men, engineers and public officials. From the beginning, service-to-the-customer was an M & H watchword. But the reverse—customer-service to the Company—voluntarily and without obligation, surely was a practical application of the "Golden Rule."

These customer "good Samaritans" have stayed with us through the years. They have given us many a lift along the road down which has come today's product. Engineering and foundry research has proved many of their suggestions worthy of adoption—thus helping us to design and manufacture the world's best valve and hydrant.

This customer good-will has been, and is, a human and inspiring phase of M & H steady growth into a position of leadership in the water works industry.

(No. 6 of a Series)

M&H VALVE
AND FITTINGS COMPANY
ANNISTON, ALABAMA

SUBSIDIARY OF WALWORTH

THE ONE THEY DON'T OUTRUN... 61 PLYMOUTH PURSUIT SPECIAL!

Here's the real King of the Road—the Plymouth Police Car specifically designed for all maximum performance situations. The standard Golden Commando V-8 gives lightning-like acceleration, takes sustained high-speed chases in stride. You'll find enough horses here to outrun just about any cars going. New high-performance segmented brake with metal insert is optional at extra cost. One-piece Unibody, Torsion-Aire Ride, heavy-duty Police components all add up to ruggedness *plus*. See your Plymouth dealer for all the details on this and other Plymouth Police Specials for '61.

61 PLYMOUTH

SOLID PERFORMER

Use Northern Gravel for Rapid Sand Filter

This is the beautiful water filtration plant of the city of Springfield, Illinois . . . another user of the Northern Gravel Company's filter sand and gravel.

Filter Sand Specifications

are carefully laid out. The Effective Sizes and Uniformity coefficients used by Consulting Engineers and also recommended by the American Water Works Association are the result of long years of research and experience.

The Northern Gravel Company is equipped to give you prompt shipment whether it be one bag or many carloads, exact to specifications. Filter sand can be furnished with any effective size between 0.35 MM and 1.20 MM.

Chemical Quality

of the filter sand is also important. It must be hard, not smooth, and free of soluble particles. This requires perfect washing and grading facilities. We have every modern device for washing, drying, screening and testing.

Filter Gravel

supporting the Filter Sand Bed, must be in turn, properly graded to sizes calculated to support the Filter Sand, and be relatively hard, round and resistant to solution.

Northern Gravel has no equal in facilities and our reserves of both sand and gravel are inexhaustible. Northern Gravel Company has been in business over 45 years. We guarantee uniformity of products and our records enable us to duplicate your requirements on short notice. Our location is central and we have commodity rates in every direction.

Northern Gravel Company

Box 307 **Muscatine, Iowa** **Phone: AMherst 3-2711**

FREE catalogs

You will find of interest

Write to address given or circle corresponding number on free post card on page 57.

New Joint Sweeper

638 A new joint-sweeper which thoroughly cleans joints or paving cracks to a depth of 1½ inches is being offered by the G. H. TENNANT CO., 721 N. Lilac Dr., Minneapolis 22, Minn. It sweeps joints ¾ to 2¼ inches wide providing a surface jointing compounds will bond to. Write for details.

New Brochure on Elevated Water Tanks

659 . . . describing the design and function of elevated steel tanks for water storage with particular emphasis on Horton spheroidal, radial cone and ellipsoidal tanks may be obtained by writing CHICAGO BRIDGE & IRON CO., ADVERTISING DEPT., 332 S. MICHIGAN AVE., CHICAGO 4, ILL.

For Street Maintenance

660 An all-purpose Maintainer Model M-52 offered by HUBER-WARCO CO., MARION, OHIO is for faster, speedier operation. Its attachments do a multitude of street maintenance work such as bulldozing, sweeping, patch rolling, snow plowing and power mowing. Write for details.

Easily Stored Safety Barricade

661 For safety Guard-Gate barricades that collapse to just inches for storage write ALBERT W. PENDERGAST SAFETY EQUIPMENT CO., PHILADELPHIA 35, PA. for descriptive literature.

Brilliant Lighting Downtown

662 A refractor (4193) for controlling the light from big mercury vapor lamps used today for illuminating wide shopping streets is offered for the first time by HOLOPHANE CO., INC., NEWARK, OHIO. Minimum glare and comfortable seeing were main objectives.

Convertible Mowers

663 BOLENS PRODUCTS DIV., FOOD MACHINERY AND CHEMICAL CORP., PORT WASHINGTON, WIS. offers two models of new Huski convertible mowers that with attachments will do such things as till, aerate, sweep, mow, or roll lawns, or act as a snow removal unit. For complete information write the company.

Photoelectric Control For Street Lights

664 A cross arm mounting for photoelectric controls for street lights which mounts on wall, pole or cross arm and consists of a right angle bracket and round receptacle housing is a new product of ACME WIRE CO., UTILITY PRODUCTS DIV., NEW HAVEN 14, CONN. Write for details.

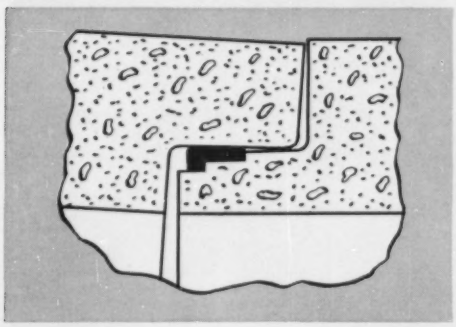
A Water Tight Pipe Gasket

665 That's really tight and stays tight is Tylox with seven sealing ribs that permits pipe coupling in just seconds in fair or foul weather. Neither roots nor sediment can penetrate nor industrial wastes affect it. For booklet write HAMILTON KENT MFG. CO., 427 W. GRANT ST., KENT, OHIO.

Records Pump Sewage Flow

666 Baltimore is using a Time Recorder-Totalizer at sewage lift stations to get complete operating data on its pumps. For full story, write STANDARD INSTRUMENT CORP., DIV. OF HEAT-TIMER CORP., DEPT. TR-10, 657 BROADWAY, NEW YORK 12, N. Y.

Press-Seal Gaskets MAKE EVERY JOINT Flexible



Temperatures vary, dirt settles, yet with resulting pipe deflection as much as 2° Press-Seal *confined compression* type rubber gasket joints remain effectively sealed and watertight. Correctly designed sewer pipe confines the gasket—compresses it to fill the annular space provided. Only unusual deflection will roll or twist a Press-Seal Rubber Gasket out of this confinement or break the watertight seal.

Press-Seal *confined compression* type gaskets are vulcanized from a special high quality Goodyear compound, using *new materials* only.

Press-Seal gaskets offer you the right material for every sewerage purpose, oil content, acid content, or common sewage. Insist on genuine Press-Seal Gaskets (patented).

Write today for our new informative manual, *Better Seals for Concrete Pipe.*

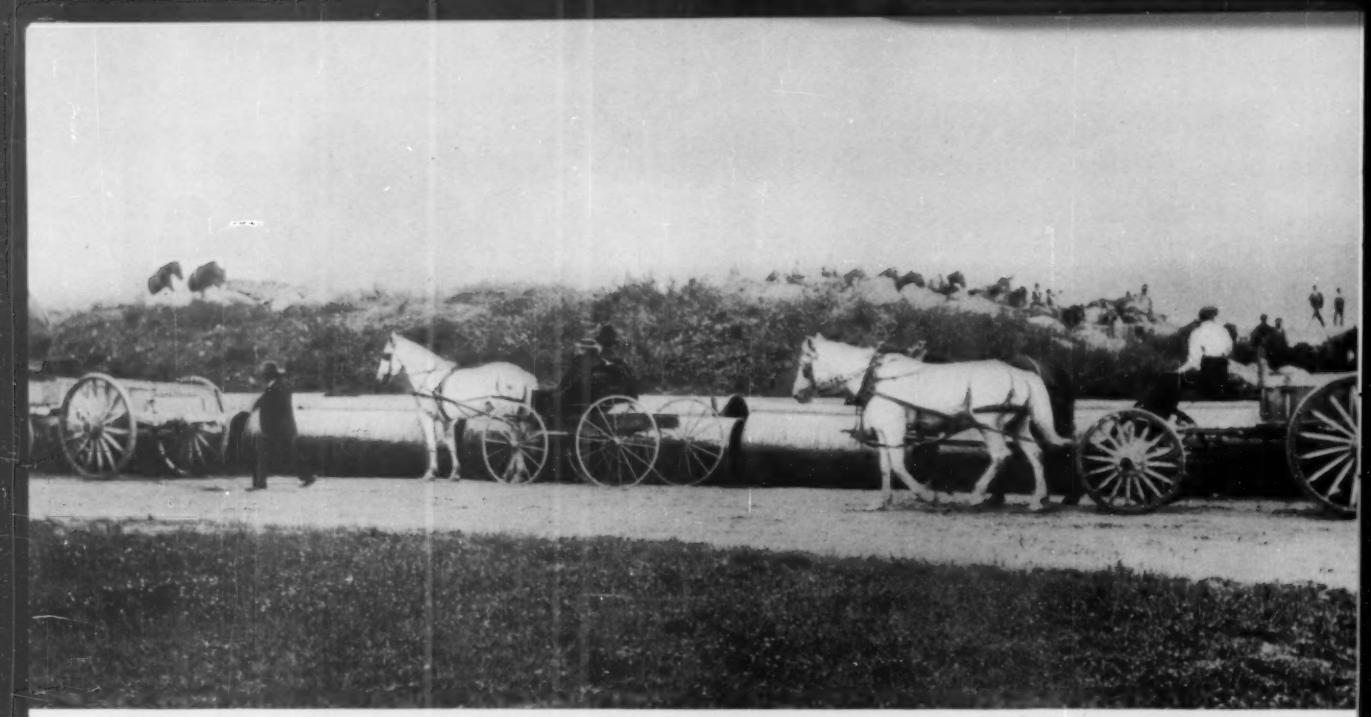
MANUFACTURED EXCLUSIVELY BY

PRESS-SEAL GASKET CORP.

OFFICE AND PLANT: P. O. BOX 482, R.R. 6, COVINGTON RD.

FORT WAYNE, INDIANA • Phone Kenmore 5213

PRESS-SEAL GASKET OF CALIFORNIA—P.O. BOX 3054, SANTA BARBARA, CALIFORNIA
PRESS-SEAL GASKET OF CANADA—KITCHENER, ONTARIO
PRESS-SEAL GASKET CORP.—10120 YACHT CLUB DRIVE, ST. PETERSBURG, FLORIDA



1896-laying New Bedford's 48-in. steel main

(and it's still in service!)

The quaint scene shown here occurred during installation of eight miles of 48-in. ID riveted steel pipe in New Bedford, Massachusetts, in 1896. Pipe-laying methods were primitive, by present-day standards, but even then steel was a preferred material for transmission mains.

The Water Department reports that there has never been a failure in over sixty years of operation. In fact, they expect the line to remain in service for many years to come.

So it is throughout the country: water departments report steel pipe in service after thirty, forty, fifty or more years. We'll gladly document this statement on request.

Because of today's vastly superior grades of steel, fabricating methods, and coating materials, many engineers conservatively estimate steel pipe's life expectancy as fifty years minimum, and most likely upwards of a century.

Add *long life* to steel's unequalled strength, high flow capacity, and leakproof qualities, and you can see why tar-enameled steel pipe is the logical material for water mains. For more information, simply get in touch with the Bethlehem sales office nearest you.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
Export Sales: Bethlehem Steel Export Corporation

Much of the line lies in swampy terrain. Yet the pipe has never failed, although its only protection was a tar-dip.

Steel

for strength
. . . economy
. . . versatility

BETHLEHEM STEEL

BETHLEHEM STEEL

Nearest thing yet to cost-free transportation . . .

CUSHMAN TRUCKSTER®

Figuring the small initial investment, the operating cost of about a penny a mile or less, the small maintenance expense, and the savings on insurance . . . the Truckster delivers the greatest economy in any light hauling application.

Capable of carrying an 800 pound payload with ease, the Truckster features a rugged automotive style chassis, big pickup box, dependable Cushman Husky 4-cycle engine, constant mesh transmission, and hydraulic internal expanding brakes.

Available as optional equipment are a fiber glass and steel cab with wrap-around windshield, and a wide range of body accessories to fit the Truckster to the job.

CUSHMAN VERSATILITY

Mosquito and Insect Control

Trash Collection

Also widely used by
- Police departments
- Park and cemetery maintenance crews
- Housing authorities
- Fire and health inspectors

Water Meter Service

Here are ***ACTUAL COST FIGURES*** *reported by two users*

POLICE DEPARTMENT, Arkansas, uses Truckster for parking meter enforcement. After 10,800 miles of operation, cost of gas and oil had averaged 0.7 cent per mile.

HOUSING AUTHORITY, Texas, uses four Trucksters for maintenance and movement of furniture and appliances. After 13,620 miles of operation (total four machines) cost of gas and oil had averaged 1.07 cents per mile per Truckster.

NEW TRUCKSTER LEASING PROGRAM SAVES CAPITAL INVESTMENT

Now you can put one or more Trucksters to work immediately with no investment. Ask for complete details on low-cost leasing program.

See your local dealer or write

CUSHMAN MOTORS
1021 No. 21st, Lincoln, Nebraska
A subsidiary of Outboard Marine Corporation, maker of Johnson and Evinrude outboard motors

Please send ☐ Literature on Truckster
☐ Leasing Program.

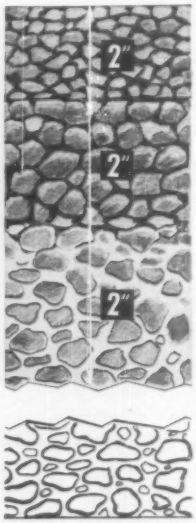
NAME_____
TITLE_____
CITY_____ STATE_____

FOUND!

A winning combination: Asphaltic concrete made with Chevron Asphalt over a Dilute Bitumuls Treated Base.

For "Deep-Strength" Construction PLUS Economy!

Realignment of U. S. Route #99 (Pacific Highway) between Albany and Eugene, Oregon, involves construction of twelve miles of new, heavy-duty pavement.



4 inches Asphaltic Concrete made with Chevron Asphalt; laid in 2 lifts as indicated.

Top 2 inches of crushed stone base treated with diluted Bitumuls; then compacted.

Compacted base stone

The original "specs" called for construction of a compacted stone base, surfaced with 4 inches of asphaltic concrete. As a result of preliminary tests, however, a Field Change Order was issued specifying treatment of the top 2 inches of the base with an economical nine-to-one dilution of Bitumuls.

Dilute Bitumuls Treatment "controlled" the top of the base during surfacing; provided water-resistance that contributed to an overall stronger pavement. Over the base, two lifts of asphaltic concrete made with Chevron Asphalt were placed to complete the construction.

The job is under the direction of the Oregon State Highway Department. The contractor, Warren Northwest, Inc., has done a fine job of coordinating all phases of the job. One key factor in maintaining operations on schedule has been the dependable, on-time service on Bitumuls and Chevron Asphalt deliveries.

Call office nearest for details on how Bitumuls Emulsified Asphalts and Chevron Paving Asphalts can be combined to give you better pavements at lower cost.

Dilute Bitumuls-Treated Base

Surfacing (made with Chevron Asphalt)

American Bitumuls & Asphalt Company

320 MARKET, SAN FRANCISCO 20, CALIF.
Perth Amboy, N. J.
Baltimore 3, Md.
Cincinnati 38, Ohio
Atlanta 8, Ga.
Mobile, Ala.
St. Louis 17, Mo.
Tucson, Ariz.
Portland 8, Ore.
Oakland 1, Calif.
Inglewood, Calif.
San Juan 23, P. R.

BITUMULS® Emulsified Asphalts • CHEVRON® Paving Asphalts • LAYKOLD® Asphalt Specialties • PETROLASTIC® Industrial Asphalts

RECOMMENDED FOR DEEP WELL SUBMERSIBLE PUMP INSTALLATIONS...

RIGID PIPE

made of* ABS *Plastic

RIGID PIPE SUBMERSIBLE PUMP INSTALLATIONS OFFER NEW PROOF OF SUPERIORITY OVER CONVENTIONAL PIPE

BE *ABSolutely* SURE . . .
INSIST ON RIGID *ABS* PIPE
made of
CYCOLAC
THE BORG-WARNER PLASTIC THAT IS TOUGH, HARD AND CORROSION-RESISTANT

In municipal installations . . . in irrigation lines . . . in sprinkling systems . . . and now in submersible jet pump installations, rigid pipe made of Cycolac ABS is demonstrating its ability to out-perform conventional pipe! Highly tensile and rustproof, it is recommended by submersible pump manufacturers for 100-ft. and deeper wells. Tasteless, odorless and non-toxic, it is fully NSF-approved for carrying drinking water. Swiftly installed and connected, it is acclaimed by submersible pump installers everywhere—saves 50 to 75 per cent over metal pipe installation costs! An added feature—servicing a unit suspended from lightweight rigid pipe is relatively simple!

Write for the name of your nearest supplier

MARBON CHEMICAL
WASHINGTON

MARBON CHEMICAL
B-W
BORG-WARNER

DIVISION **BORG-WARNER**
WEST VIRGINIA

Where security counts, count on USS Cyclone Fence

This is the easy way to protect people and property

USS Cyclone Steel Fence is the simple solution for safeguarding lives and property in a public place. It protects children from traffic, stands pat against thieves, vandals and trespassers . . . and seldom succumbs to attacks of wind, fire or corrosion. It is extremely difficult to get through the fence or *over* it. And Cyclone Gates have a precise locking device that discourages unwanted entries.

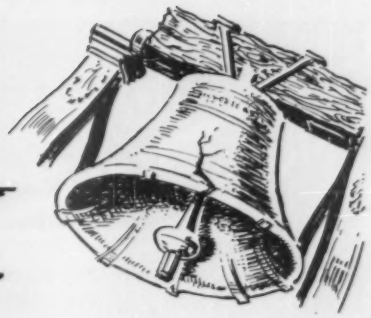
USS Cyclone Steel Fence provides efficient, 24-hour protection at a reasonable cost for schools, parks, and all kinds of municipal projects. Write us today for details and complete specifications. American Steel & Wire, 614 Superior Avenue, N.W., Cleveland 13, Ohio.

USS and Cyclone are registered trademarks

American Steel & Wire Division of United States Steel

Cyclone sales offices coast to coa

PHILADELPHIA, PA.*



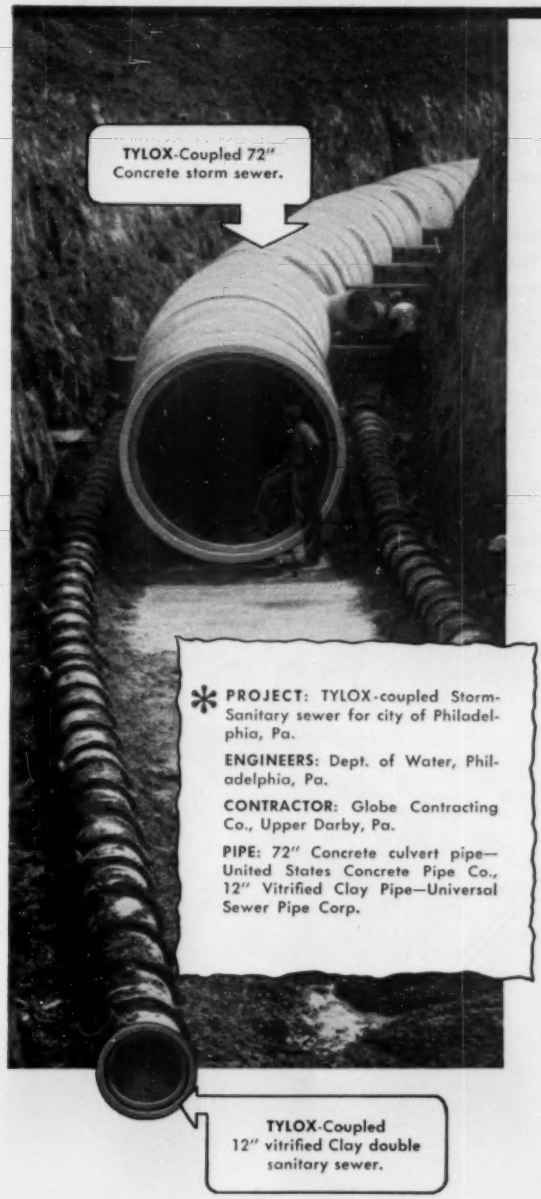
chooses

TYLOX

RUBBER PIPE GASKETS

TO

- ***PREVENT INFILTRATION***
- ***WHIP DETERIORATION***
- ***REDUCE PIPE-LAYING COSTS***



* **PROJECT:** TYLOX-coupled Storm-Sanitary sewer for city of Philadelphia, Pa.

ENGINEERS: Dept. of Water, Philadelphia, Pa.

CONTRACTOR: Globe Contracting Co., Upper Darby, Pa.

PIPE: 72" Concrete culvert pipe—United States Concrete Pipe Co., 12" Vitrified Clay Pipe—Universal Sewer Pipe Corp.

For its new combination storm-sanitary sewer shown here under construction, the city wanted long-lasting, low maintenance lines—built within the budget. Engineers wanted leak-proof lines that would **stay** leak-proof. Contractors wanted fast pipe jointing to help offset high construction costs. Here's how the choice of Tylox Rubber Gaskets helped meet all three requirements efficiently and economically:

1—**TYLOX** Gaskets have **seven** sealing ribs that "pack" pipe joints tight by compression. Natural resilience of the rubber **keeps** the seal watertight. Sewage treatment costs are reduced, and root and sediment problems are prevented.

2—**TYLOX** Gaskets speed pipe laying through fast assembly, and by eliminating trench work delays . . . mud and water can't slow up work, and laid line may be backfilled immediately. Installation costs are reduced.

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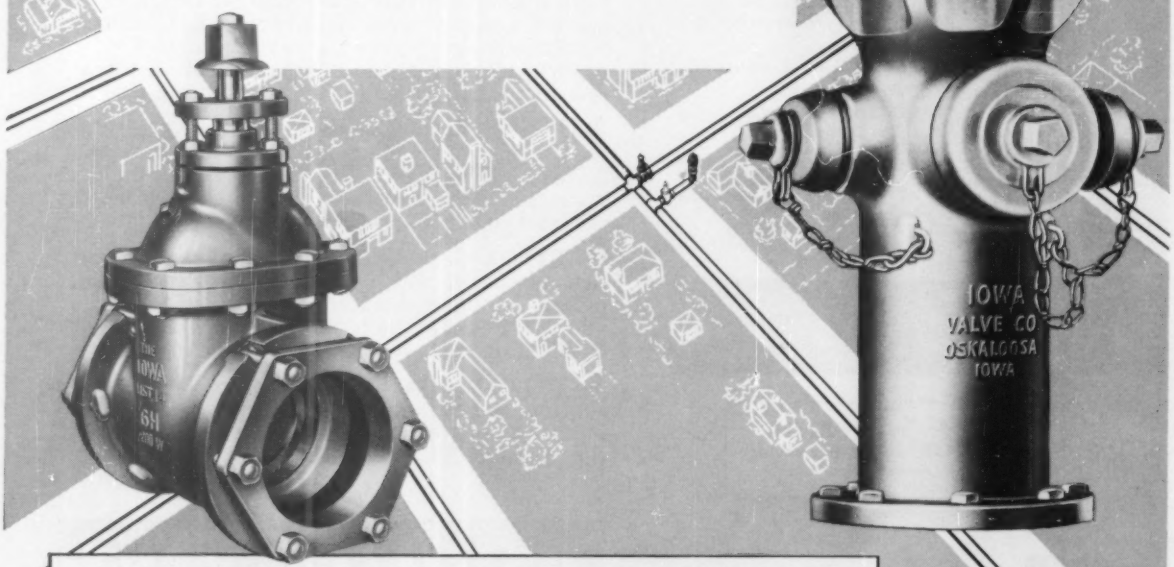

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Husky new rubber-tired machines — Case Model 530 is powered by 40 hp *Dynaclonic* diesel or 47 hp gasoline engine. Shuttle-shift and power-steer, std. Available with 2000-lb. loader, 14′ backhoe, quick-change front and rear attachments. Economy Model 430 has 35 hp *Dynaclonic* diesel or 37.5 hp gas power-plant . . . 1000-lb. or 1200-lb. loader, 10′ backhoe, multiple attachments.

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J. I. Case Co., Dept. LI560 Racine, Wis.

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☐ 430 Wheel tractor
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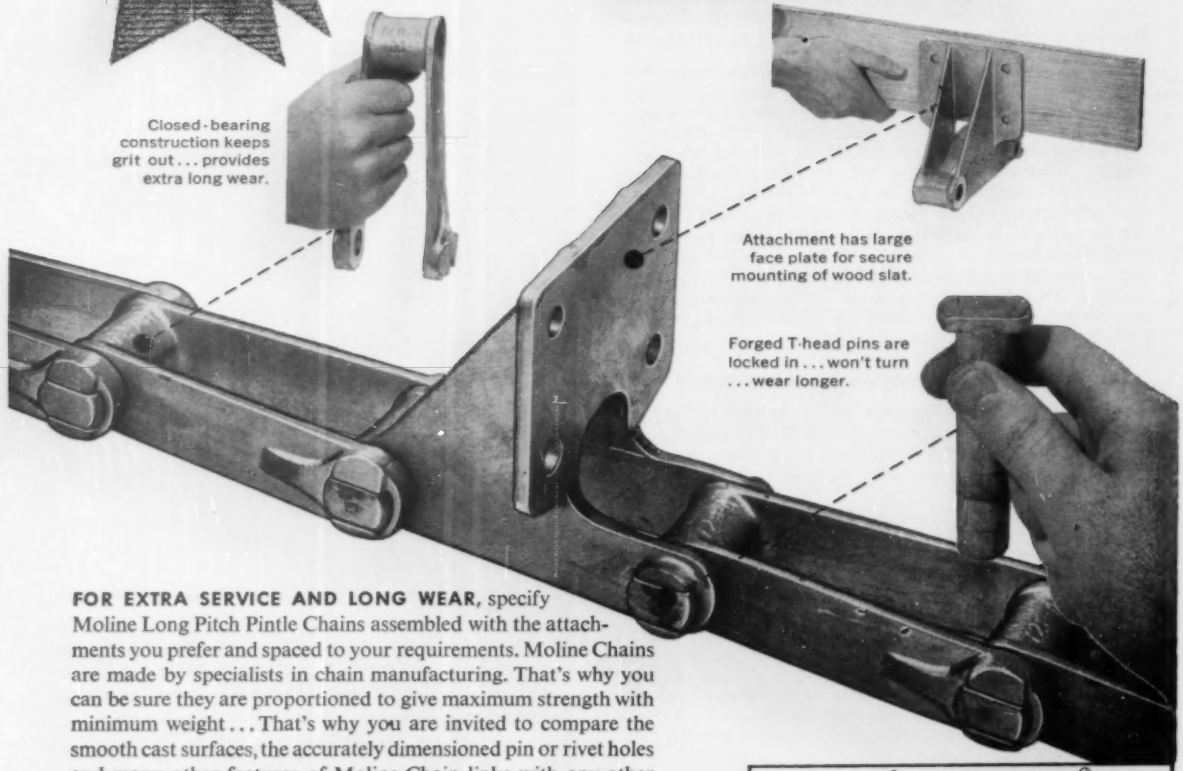
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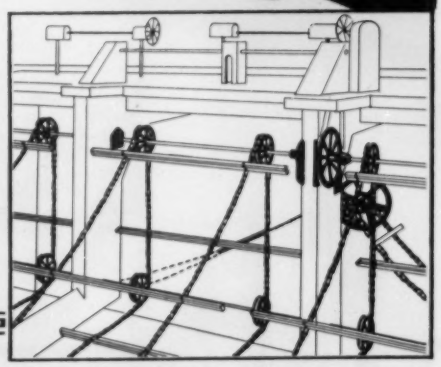

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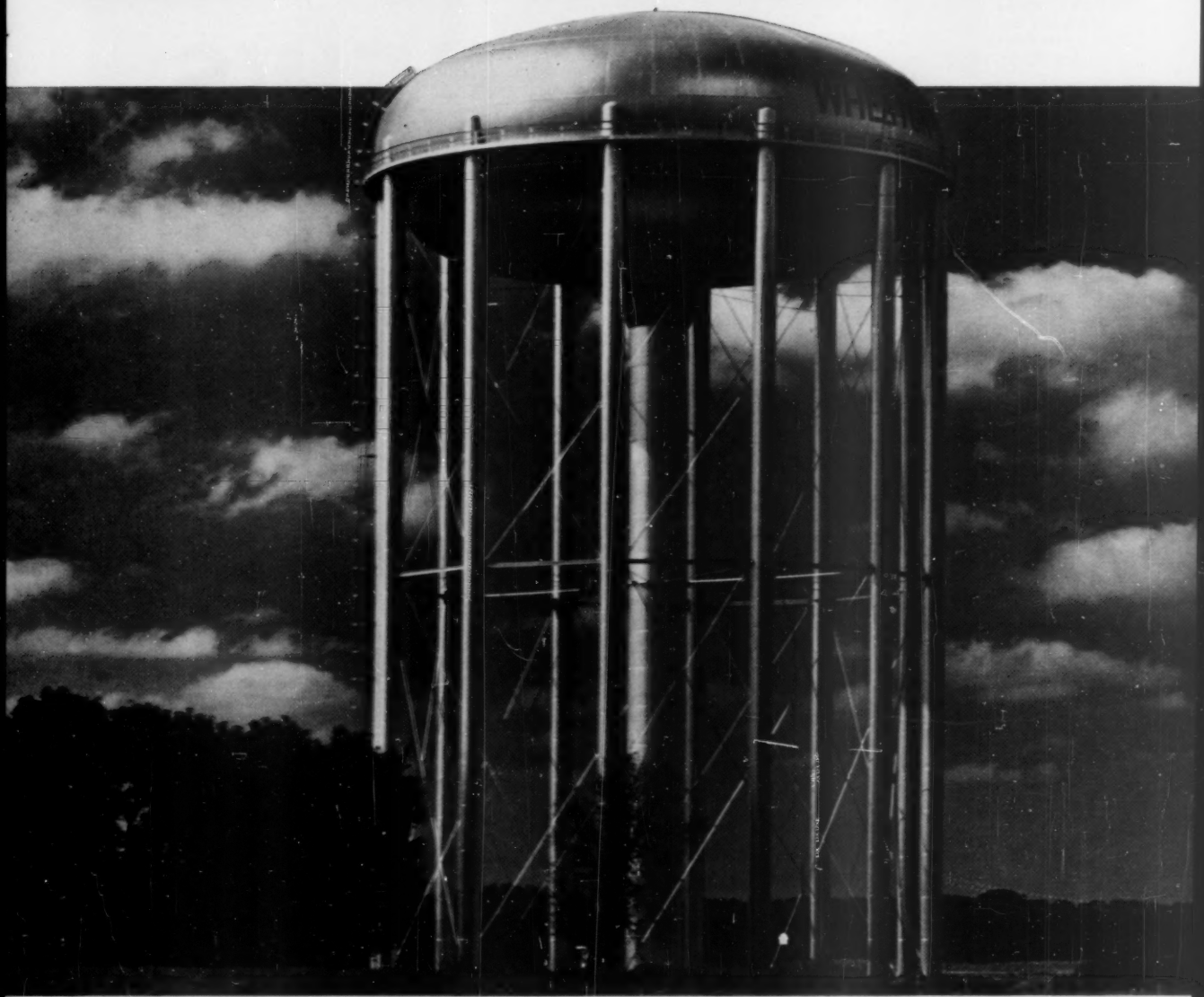

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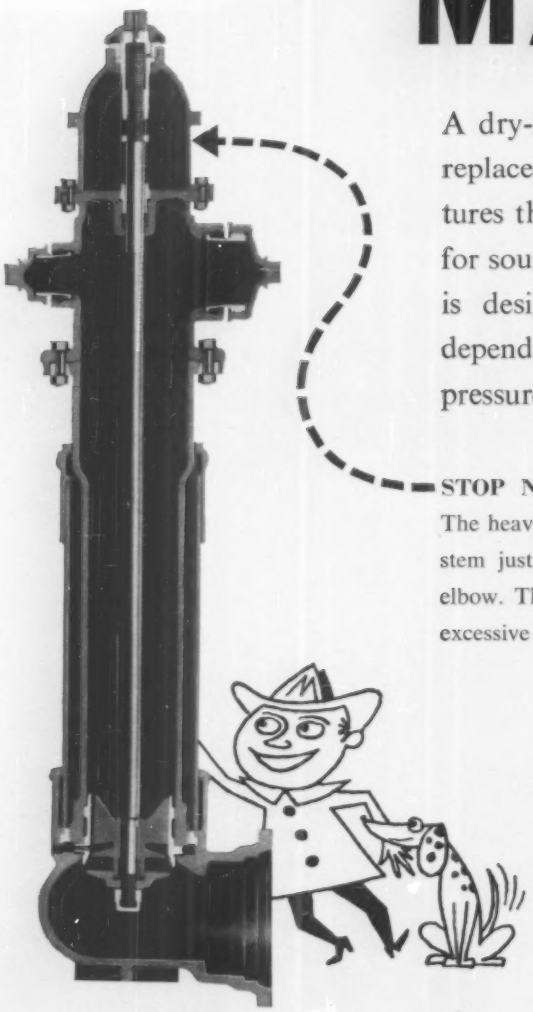
PUT ALL THESE FEATURES IN ONE HYDRANT AND YOU HAVE A

MATHEWS



A dry-head hydrant; adjustable nozzle levels; replaceable barrel—three of many major features that help make Mathews the one hydrant for sound community protection. The Mathews is designed to be always operable, always dependable, always ready to deliver at full pressure.

STOP NUT PREVENTS STEM FROM BUCKLING
The heavy bronze stop nut halts the downward travel of the stem just before the lower end touches the bottom of the elbow. This prevents any buckling stress on the stem when excessive pressure is put on the opening wrench.

AND ALL THESE OTHER FEATURES, TOO:
All working parts contained in replaceable barrel • Head can be faced in any direction • Replaceable head • Any nozzles you specify • Nozzle levels raised or lowered without excavating • Leakproof because stuffing box is cast integral with nozzle section • Operating thread only part requiring lubrication • Protection case of "Sand-Spun" cast iron for strength, toughness, elasticity • With bell, mechanical joint or flange pipe connections

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Manufacturers also of Mathews Flange Barrel Hydrants, R. D. Wood Hydrants, R. D. Wood Gate Valves, and "Sand-Spun" Pipe (centrifugally cast in sand molds)

BUILDING INTERSTATE HIGHWAYS....

OHIO—Roll-O-Matic Tandem and 3-Wheel Rollers working on Routes #3 and #62 access roads near Columbus.

MICHIGAN — T-600 Grade-O-Matic Grader with sand tires on Route #12 near Battle Creek.

WYOMING—Galion Roll-O-Matic Tandem Roller working on Highway #87 near Cheyenne.

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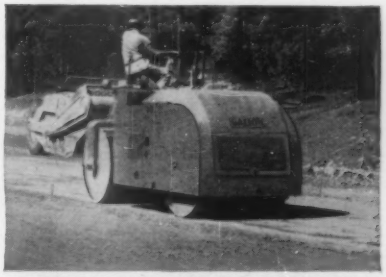
There's a mighty good reason why the name GALION is a familiar one on graders and rollers working on major construction projects across the country. That reason is their ability to help pull contractors out of tough situations caused by unexpected delays and rigid completion schedules.

GALION Graders and Rollers have the built-in stamina and reserve power to make up lost time by working at full capacity without let-up all day long. Their ease of handling and precision control enable operators to set performance records, get their job done on time and profitably.

FLORIDA—Galion T-500 Grader working on construction of Route #1.



CALIFORNIA—Galion Tandem Roller working on Dunsmuir project, Route #99.

TEXAS—T-700 Grade-O-Matic Grader working on Highway #75 near Huntsville.

See your Galion Distributor for complete information on the Galion ROLLER RENTAL Plan

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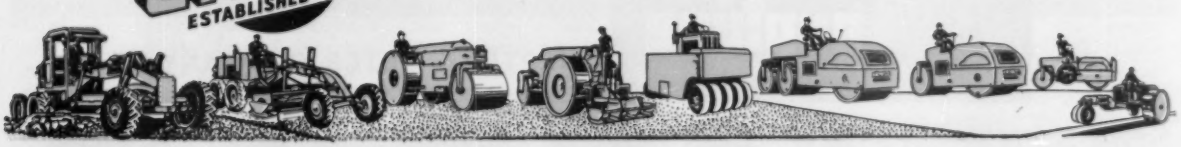


ARE YOU GIVING AWAY TONS OF WATER

...just to save a few cents?

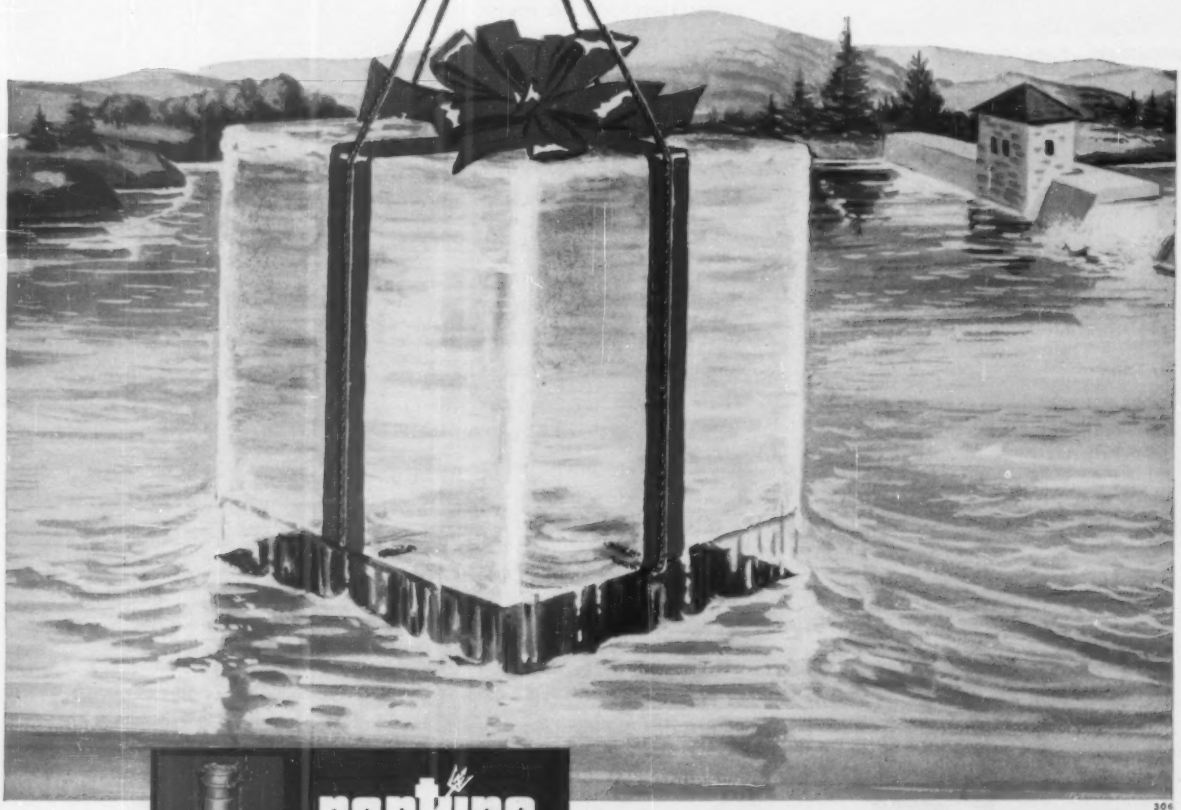
The value of a water meter is not what it costs, but what it *earns*. Actually, its "bid price" is only your down payment, and could well be the only *easy* payment.

There are two reasons. First, like any fine instrument, a water meter loses accuracy as it wears. After a few years... or a few months... it begins to lose revenue. If you buy on price alone, you may soon find the meter giving away far more than the few cents you thought you saved.

Secondly, to keep the meter accurate, you may have high repair costs... or premature scrap-and-replace programs. Different makes of meters vary widely in this respect.

Water is your city's most vital service. You entrust it to the accuracy of your meters. To be sure of this accuracy, visit your meter shop. Ask which meter gives highest sustained revenue... with lowest repair and depreciation costs.

We sincerely believe the answer will be "Trident." 15,000,000 since 1898... the world's leader.



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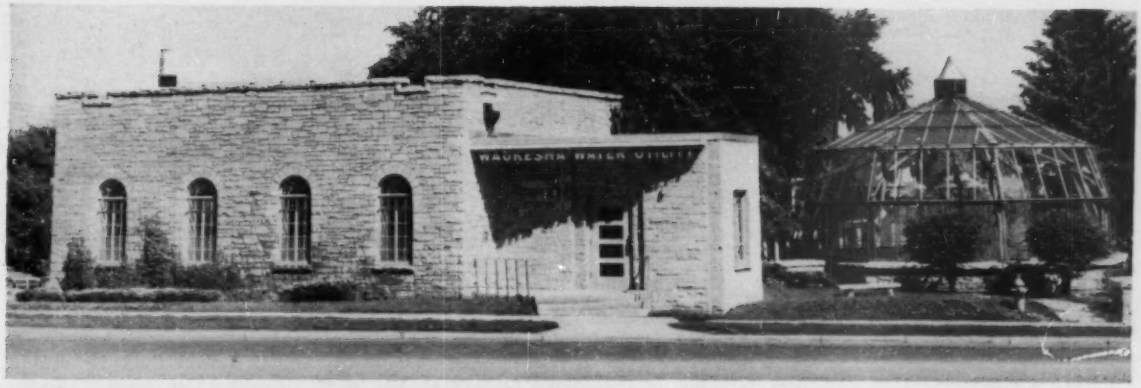
NOVEMBER 1960

The American City



A glass-enclosed aerator, right, equipped with a colored program lighting system, provides a visual indication of the Water Utility's willingness and ability to provide plenty of water for its customers.

Waukesha, Wis., utilizes a variety of water tanks, both ground storage and elevated, to provide . . .

The Right Type of Reservoir

By **JOSEPH H. KURANZ,** Manager and Chief Engineer
Water Utility Commission, Waukesha, Wis.

Waukesha has far too much water storage capacity if one adheres strictly to the engineer's rule of thumb that a good system should have finished water storage of sufficient capacity to hold at least 25% to 50% of the total average daily output. We can place in storage 6,136,152 gallons. This is 150% of the daily average usage and 99% of the daily maximum usage. We feel that this is necessary under modern conditions of heavy lawn irrigation and active industrial use and believe that others will follow suit. Moreover, we have something of special interest to say about types of storage and materials of construction that we have used.

Our volume of storage gives us two important advantages. We can level off maximum hourly demands and eliminate the cost of excessive pumping capacity. We also can provide emergency storage in case of a break in the supply line or failure at the pumping station.

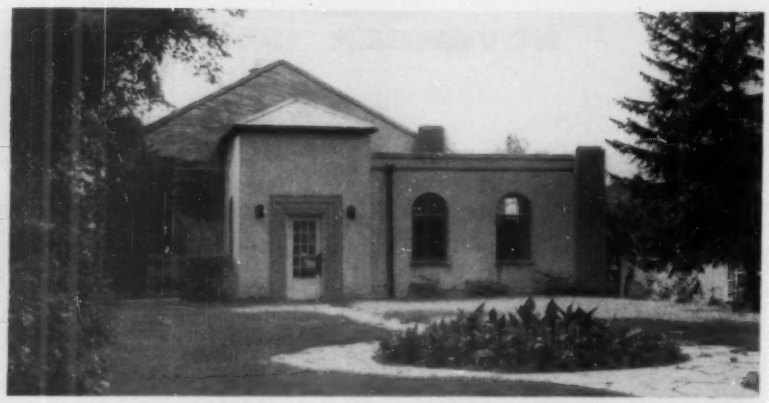
In the latter case, we at present do not provide auxiliary power at our pumping stations (all are electric) but we are developing plans that, when completed, will provide for the installation of adapters at each principal station to permit the quick connection of a Waukesha Motor diesel generating unit in the event of a prolonged power outage.

A Variety of Tanks

Our experience convinces us that tank selection should never be taken for granted, even in a city as small as Waukesha. Each type of tank and material has its particular place. Only after a careful engineering study, together with an adequate cost analysis, aesthetic considerations and other factors, should one make a particular selection. While some aspects of reservoir or tank selection may be competitive, to make your selection on price alone, is wrong.

Waukesha encompasses approximately 5.9 square miles of area, ranging from 790 feet to 980 feet above sea level. From 1888 to 1934 a single 320,000-gallon wrought-iron elevated storage tower with an overflow elevation of 982.58 feet above sea level served the distribution system. When full, this tank provided pressures in the distribution system ranging from 18 to 80 psi. In 1934 the utility augmented this reservoir supply with a second unit constructed on the same site. This 675,750-gallon reinforced-concrete water tower overflows at 988.58 feet above sea level or 6 feet above the original tank. Because of the prominent location of the tower —on a high hill in a residential area—an imposing architectural design was considered essential. For this dominant reason, the water utility selected the William S. Hewett system, which embodies use of rods and turnbuckles to pre-stress the concrete, keeping the concrete always in compression. The tank is

Latest addition to Waukesha's storage facilities are two elevated waterspheroids, one of which is shown here.



As Waukesha increased its water supply, it also added ground storage capacity. Three of four installations built are similar to the one shown here. Storage is underground.

50 feet in diameter, inside, and 46 feet high at the overflow line. The roof consists of a reinforced-concrete dome, also a Hewett design, having a pre-stressed reinforcing ring. The wall consists of a ten-inch shell, reinforced vertically in both faces, turnbuckle pre-stressing bands, and a four-inch compression concrete covering on the outer shell. All construction joints were vertical.

Reservoirs Added

Through the years, the utility has placed much emphasis on the source of supply. Previous to 1932, the city depended upon numerous low-capacity wells for its water. These were replaced with higher-capacity units strategically located throughout the city. The new wells provided material savings in pumping cost and improved reliability. Each such project, totaling four by 1948, included an attractive pump and equipment building with an integral clear-water basin or reservoir. The latter served the dual function of providing storage and aerating the water. These four buildings and surface reservoirs are of standard reinforced concrete construction, rectangular in shape. The four units provided a total of 876,152 gallons of water storage. The Baxter Street station (illustrated) is typical of three in this classification, while the North Street station provides approximately the same amount of water storage but has the added feature of a glass-enclosed aerator that incorporates a General Electric colored program lighting system which provides Waukesha's citizens and visitors with a nightly performance of beautiful shades of colors playing upon a cascade of the city's famous water. The latter feature is the pride of the community and a popular attraction for all our visitors.

Early in the 1950's Waukesha began to experience a population boom. An influx of new families imposed ever-increasing demands upon the utility's residential loads. When the utility determined that this growth was not temporary, we initiated plans for the East Avenue well (Well Number 5) and pumping station which would provide an additional 1.7 million gallons of water per day.

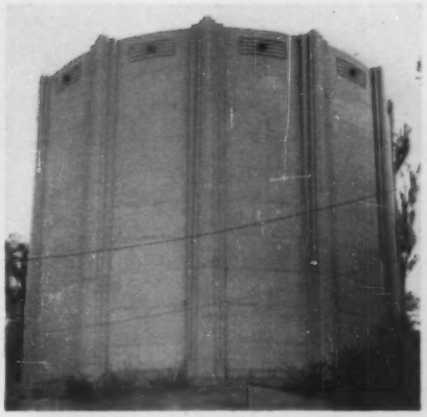
Furthermore, our studies showed that a 2,000,000-gallon storage reservoir would be required in order to satisfy the anticipated peak-load requirements. After an engineering study, we decided that this proposed new reservoir should be 150 feet in diameter with a high-water level of 15 feet. The reservoir had to be aesthetically attractive since its location would be in a future residential area; moreover its design would have to provide us with a reservoir having a low initial cost and requiring a minimum of maintenance. With these and other allied features in mind, the Utility Commission selected a prestressed concrete storage tank incorporating the designs of The Preload Company. The tank, constructed in 1956, cost $130,000. Since the area is developing rapidly, the facility will soon be landscaped in keeping with the residential character.

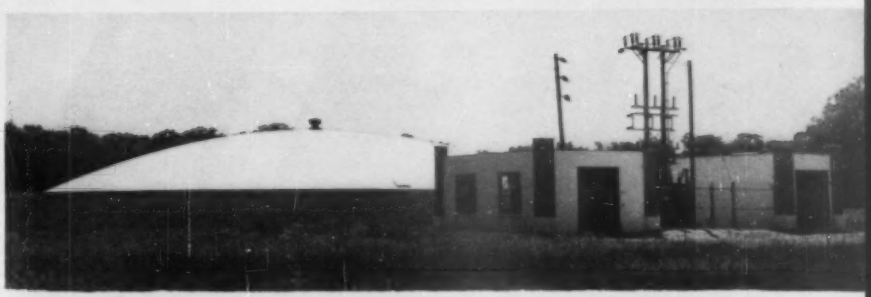
More Elevated Storage

As the residential building boom continued, subdividers began to develop new territories to the northwest and southeast. These lands included sections of higher elevation than that served by the two existing elevated storage towers. An engineering study and distribution system survey conducted in 1955 by Pitometer Associates recommended two new high-level distribution systems. The northwest area embraces approximately 1.4 square miles of residential and light industrial users, and the southeast, approximately ¾ of a square mile of residential users only. The studies concluded that elevated storage would best serve the requirements of these two new high-level distribution systems and that the tank serving the northwest section should provide a minimum of 250,000 gallons of water storage at an overflow elevation of 1055.6 feet above sea level with a pump capacity of 750 gallons per minute, and that its counterpart for the southeast section should provide 100,000 gallons of water storage at an overflow elevation of 1038.6 feet above sea level with an initial pump capacity of 150 gallons per minute. Subsequently, we awarded a contract to the Chicago Bridge and Iron Company in 1958 to construct the two units at a total cost of $97,730, including the cathodic pro-

For 46 years this 320,000-gallon water tower served as Waukesha's only elevated storage facility.

A rod-prestressed concrete tank supplemented it in 1934, increasing the storage capacity to almost 1,000,000 gallons.





For its new and larger ground storage facilities, the Utility chose to use round, partially concealed prestressed-concrete tanks with dome-shaped covers.

tection system and painting. The latter feature, incidentally, created a great deal of community interest, comment and excitement since we selected a rather striking turquoise color (see the cover photo). Valving accomplished the desired result of simply isolating these areas from the low-level distribution system.

Additional Supply

Increasing demands by both residential and industrial users necessitated the development of new sources of supply. Upon completion of a geological survey, the utility purchased parcels of land lying outside and southwesterly of the corporate city limits for proposed Wells Number 6 and Number 7 since this area was recommended as best suited for development of high-capacity deep wells. These land purchases and their contemplated use generated many new problems, primarily of a geopolitical nature, which, to date, have not been completely resolved.

In 1959 we drilled and developed a 2,075-foot-deep, 19-inch-diameter well (Well Number 6). Tests indicate that this unit will produce two mgd at a specific capacity of 20. In addition to this well and its associated pumping station and equipment, a second 2,000,000-gallon reservoir, identical in dimensions and design to the East Avenue reservoir, is also being constructed. This new source of supply and reservoir are to be in full operation by the end of 1960.

In 1961 the utility plans to drill a seventh deep well of the same general dimensions as the above. No storage will be provided for the proposed Number 7 unit, since it will discharge through a low-pressure main into the 2,000,000-gallon Sunset Drive reservoir (serving Well Number 6) now under construction. The design permits the Number 7 well to pump directly into the distribution system if necessary. This feature is also incorporated in the design of Wells Number 5 and Number 6.

City Owned

The Waukesha Water Utility is city owned and is operated by the Waukesha Water Utility Commission. This Commission is comprised of a three-man citizen board, serving concurrent terms of three years each. An alderman representative and the mayor make up the balance of this Commission. The men, all prominent civic leaders, are charged with the responsibility of formulating the utility's policies and developing the rules and regulations from which it operates. They hire a manager and fix his compensation. The manager, in turn, employs the necessary staff to carry out all of the supply, distribution and administrative functions. In our case this encompasses the complete operation, from collections to accounting, maintenance and construction (water utility crews install new mains and services). The utility pays its own way out of its revenues, supports and pays for its revenue bond issues and pays taxes to the city, as would any other profit-making industry.

The Waukesha Water Utility maintains liaison with the governing body of the city, the Mayor, and the Common Council through its alderman representative. Major projects involving the awarding of construction contracts and the installation of new mains (the latter usually accomplished by utility crews) are brought before the Common Council by its Sanitation Committee. Approval is required before work commences on such projects.

An effective and continuing public-relations program has created a harmonious atmosphere between the utility, the Common Council and the citizens of Waukesha. This can be attested by the enthusiastic support which greets the Utility when announcements of major improvements and additions are made. This, despite the fact that these announcements are received with the knowledge that rate increases will follow! ◄◄

Privately owned trucks help remove snow when the load becomes too great for city-owned equipment.

A revised snow and ice control program for the City of Newburgh, N. Y., produces the satisfactory change . . .

From Criticism to Compliments In Two Years

By **W. G. McEVILLY**
Director of Public Works
Newburgh, N. Y.

Following a 20-inch snowstorm in March 1960, one of our officials with a long record of service remarked "this is the first time anyone has ever taken the trouble to compliment the city on its snow and ice control service." However, we feel these compliments were earned, for this important work is now done under a well-organized program.

We started to work up the program two years ago, made notes on our mistakes during the first winter of its use and revised the various details accordingly.

New equipment also played an important role. Several years ago the city started a program of replacing all old, worn out or obsolete equipment as well as purchasing additional equipment needed to perform essential public works functions. Purchases directly connected with snow and ice control work included the acquisition of two Fox salt-and-sand spreaders, Good Roads reversible plows with Anderson air-lift hoists, three International 5-yard dump trucks, and a Bros snow blower which we attach to a new Michigan 125A front-end loader.

Coordinated Program

Depending upon the severity of the storm, actual work will be performed by the Street Department, Park Department, Recreation Department and private contractors. We also call upon the Water Department should additional men be needed. All work is coordinated between the departments doing the work, the police department and the city manager's and city engineer's office.

Should the storm hit during working hours, all assignments are made through the respective department heads under the overall supervision of Superintendent of Streets Ralph Henderson. During other times regular call lists for each department are used to call out the number of men needed.

As in any good program, equipment is assigned to definite routes. Salt spreaders are the first to go

Author McEvilly looks over the city's newest piece of snow-fighting equipment upon delivery. This unit along with the front-end loader (rear) had a real work out last winter.

Newburgh's snow and ice control program passed a severe test by successfully coping with the worst storm experienced in many years.

out, and cover all major streets, bridges and dangerous hills, of which Newburgh has many. Equipment consists of the two Fox units and four older Hi-Way spreaders.

Plowing

Plowing begins when snow has reached an accumulation of two inches. City-owned equipment consists of three new Internationals and an older Mack truck, the three new GMC refuse collection trucks, and an Austin-Western grader, plus the four Hi-Way spreaders. (The Fox spreaders are hopper-type body units that fit inside the regular dump truck bodies.)

We also maintain a list of all contractor equipment available, including the hourly rental price obtained by bid. Thus, additional graders can be obtained for snow and ice plowing should they be needed at any given time.

We normally remove snow from the downtown business area, certain outlying streets that are so narrow as to require removal for proper travel, and the city's ten parking lots. Our new Bros snow blower takes the brunt of this work, but is supplemented by rented front-end loaders should the snowfall be heavy. Hauling to two designated disposal sites is accomplished by city-owned and rented trucks. We also utilize the Michigan loader without the blower in certain locations.

Newburgh's main street is 90 feet wide from curb to curb, so snow is plowed to the center of the street rather than to the sides. We follow the normal procedure of plowing to the curb on all other streets.

The various features of the program contain nothing in the way of startling or revolutionary information. However, it does indicate once again that with a fair amount of city-owned equipment, with a procedure whereby privately owned equipment can be put into service according to plan, even the unusual storms can be handled without serious difficulty or interruption to traffic.

The 20-inch snow storm of last March and the compliments received following the storm indicate to us that our program is a success. ◄◄

Lompoc, Calif., solved its urgent sanitation problem by constructing this two-stage high-rate filter plant.

A New Sewage Plant for Lompoc

Raw sewage and primary recirculation pumpage matched against wet-well input; standby power provided for emergency conditions

By **IVOR A. LYONS**
Ivor Lyons and Associates
Consulting Engineers
Los Angeles, Calif.

Lompoc, Calif., gateway to Vandenberg Air Force Base, has served for 80 years as the commercial and residential center for the surrounding agricultural area known as the Lompoc Valley. Over the past two decades the construction, activation and deactivation of the military base has directly affected the growth and decline of the city's population and economy. In 1943 the federal government sponsored a bio-filter plant to replace the crude disposal facilities which had served the city since the turn of the century.

Over the past two years, the crash programs at Vandenberg Air Force Base and the naval installation at Point Arguello recreated the federal impact on an unprecedented scale. Since 1957 the city's population has grown from 5,300 to nearly 16,000 persons and still is on the increase.

The corresponding increase in sewage flows together with the deteriorated and even dangerous structural condition of most units at the present plant created a sanitation problem of the utmost urgency. The city engaged the writer's firm to study the problem in the spring of 1958, and on July 10, 1959 a $1,242,500 contract was awarded to Fred J. Early, Jr. Company to construct a new treatment plant and eight miles of trunk mains.

Unlike 1943, federal assistance, other than a maximum grant under Public Law 660, was not available to offset this expenditure, despite the fact that government activity again resulted in the need for the program.

Design Data

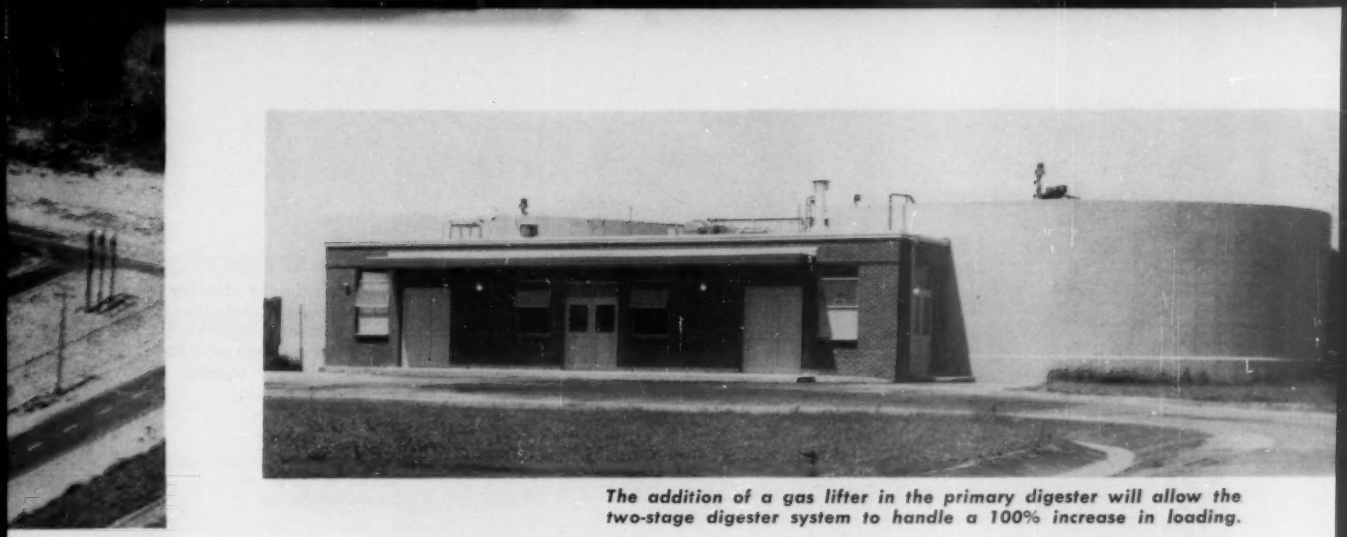
The two-stage high-rate filter plant will serve initially 4,400 acres of city and adjacent county territory. We used a design population of 22,000 persons contributing 80 gpcpd or a total daily flow of 1.76 million gallons. With these conditions, assumed plant removal based on the standards of the Upper Mississippi River Board are 93.5%.

Raw sewage first enters the headworks structure where it is screened and comminuted by an Infilco Rotagrator of 6,000-gpm capacity at 2½ inches head. It then flows to the wet well where raw and primary recirculation flows converge. Combined flows are then pumped to a primary clarifier 85 feet in diameter with 10.6-foot side-water depth, providing a retention period of 2.6 hours. Normal overflow rates are 780 gallons per square foot per day, with a rise of 4.08 feet per hour. Mechanical equipment collects and transfers sludge to the digester by means of either time clock or manual control.

Settled sewage flows to a distribution box supplying primary and secondary filters, each 85 feet in diameter with four feet of rock. Filter media is graded from four inches to 2½ inches, with the minimum size selected to eliminate tendency to ponding.

We established the recirculation ratios so that each filter handles 50% of the BOD remaining in the raw sewage passing to the biological process. Primary recirculation, routed around the primary clarifier, is ½:1 and secondary recirculation, directly around the filter itself, is 1:1. With BOD removal in the primary clarifier assumed at 35%, the unit filter loading at design flow amounts to 2,600 pounds of BOD per acre-foot per day. Corresponding dosing rates for primary and secondary units are 20.3 and 27.1 million gallons per acre per day respectively.

Rotary distributors on both filters are the four-arm reaction-driven



The addition of a gas lifter in the primary digester will allow the two-stage digester system to handle a 100% increase in loading.

A 4,000-gallon hydro-pneumatic tank located adjacent to the chlorine contact basin supplies the plant sprinkler and foam control system with plant effluent.

type with mercury seals requiring an operating head of 3 feet 7 inches at maximum capacity of 3,800 gpm.

Secondary filter effluent flows to a final clarifier 55 feet in diameter with a nine-foot side-water depth. At normal flow this unit provides a 2.43-hour retention period and an overflow rate of 740 gallons per square foot per day at a rise-rate of 3.7 feet per hour. Sludge is collected mechanically and wasted continually to the raw-sewage wet well.

All mechanical equipment on the filters and clarifiers consists of Infilco units.

Chlorine Tank

The clarifier effluent flows through a three-pass rectangular chlorine tank providing 32 minutes contact at design flow. Equipment consists of two Wallace & Tiernan V-notch solution-feed chlorinators of 200 pounds per 24 hour capacity each. Plant effluent is measured by a Parshall flume with Foxboro transmitting devices which both monitor the proportional dosage of chlorine to the contact tank and record, integrate and totalize by remote control flows through the flume. Final effluent discharges into the Santa Ynez River.

The two-stage digestion system consists of a primary tank 55 feet in diameter with 28½-foot side-water depth and a secondary tank also 55 feet in diameter with 26½-foot side-water depth. Both units incorporate Infilco floating covers, the primary cover having been designed to float directly on the tank contents with the gas pressure such as to ensure submergence of floating material in the tank. The secondary gas-storage type cover has a capacity of 2,500 cubic feet at nine inches water pressure. A mixer mechanism in the primary tank provides for four tank turn-overs per hour.

A two-level control building between the tanks contains two Wemco vari-speed sludge pumps, transfer piping, a Walker Process heat exchanger and a General Motors Corporation diesel-alternator set.

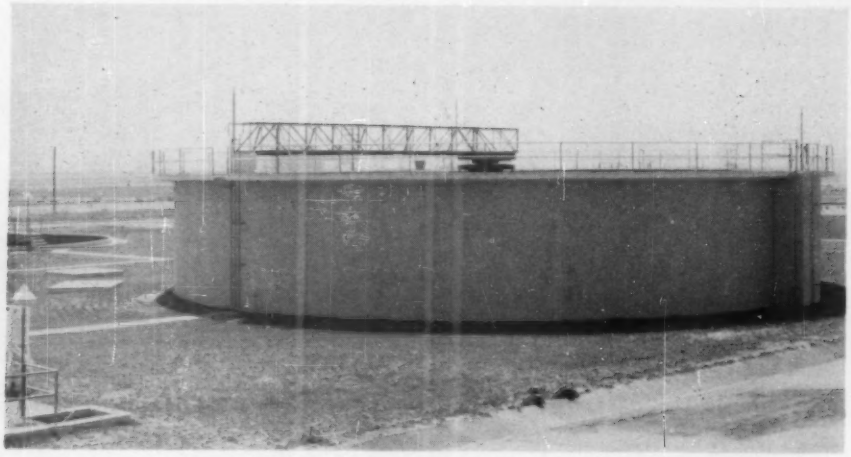
The vari-speed three-inch horizontal sludge pumps discharge 50 gpm against a total discharge head varying from 20 feet to 60 feet at drive speeds of 575 rpm to 1160 rpm. The heat exchanger burns gas or oil as fuel and is capable of imparting 500,000 BTU per hour to the digester contents.

Duplicate sinks on the digester control building ground floor permit sampling of raw sludge and supernatant. Routine gas safety equipment, sludge beds and a waste-gas burner complete the facilities.

Liberal design factors in the digestion system provide for plant expansion. The digesters provide 136,100 cubic feet capacity, or 6.19 cubic feet per person for a population of 22,000. When the plant is expanded, the addition of a gas-lifter in the primary tank should produce a digestion system adequate for 100% increase in loading.

Power Standby

The diesel alternator set provides electrical service to essential plant units during periods of power outage. The alternator has a rated continuous output of 150 kw at 0.8



The primary clarifier provides 2.6 hours detention time at an overflow rate of 780 gallons per square foot per day.

power factor. The engine is a mechanical fuel-injection type capable of starting cold solely from the heat of compression, using No. 3 fuel oil. It is arranged for automatic start on failure of electric power, with a series of nickel-cadmium batteries sufficient for six attempted starts. Relays and timers allow cycle-cranking of about 15 seconds cranking and ten seconds rest, with failure to start reported to an annunciator panel in the main control building.

Remoteness of the plant from existing water service necessitated an independent fresh-water supply. This consists of a 100-gpm well pump and a hydro-pneumatic tank of 1,000 gallons capacity with operating pressures varying between 70 and 45 psi. With foam control sprays and hose bibs connected to a separate wash-water system, demands on the fresh-water system will be nominal.

The main control building contains the normal offices and a well-equipped laboratory. The forced-air heating system is supplied by a 108,000 BTU per hour sludge-gas fired furnace. Chain-operated hoists and monorail systems in both the pump room (low-level) and the motor room facilitate handling of heavy equipment.

Special Features

We consider the application of vari-speed pumping of raw sewage and primary recirculation flows noteworthy. The basic intent is to provide a method of pumping at speeds constantly varying so that pump output is matched against input to the wet well. This we accomplished by means of magnetically induced modulation of motor speed and, in the Lompoc plant, an increase from 760 rpm to 1,200 rpm reflects a corresponding pump output over a range of 300 gpm to 6,000 gpm.

Two Fairbanks, Morse vari-speed angle-flow pumps, capacity 300 gpm at 760 rpm and 43-foot head to 6,000 gpm at 1,200 rpm and 50-foot head, are driven by Electric Machinery vari-speed squirrel-cage part-winding induction motors. These are three-phase, 60-cycle, 440-volt units rated at 100 hp at 1,200 rpm. An Automatic Controls "Bubbltrol" system controls the operation of the pumps.

Operation System

Briefly, the system operates in this manner: the air bubbler system, in which variations in level produce corresponding variations in air pressure required to maintain bubbling, monitors the liquid level in the wet well within close limits. These pressure differentials when converted to directly proportional changes in electrical resistance, modulate pump motor speeds so that output matches input to the wet well on both rising and decreasing liquid levels. Advantages of the system include high sensitivity, elimination of floats and electrodes, and centralization of all control apparatus.

Also, wet well capacity is not predicated upon storage factors but is of sufficient size only to accommodate pump suctions and permit routine inspection. At Lompoc, the pumps take suction from the floor of the wet well, thus preventing the settlement of solids.

To provide an installation consistent with Lompoc's location in the scenic Lompoc Valley, we emphasized landscaping, with some 2½ acres devoted to lawns and iceplant ground cover; and a total of 32 Brazilian pepper trees, planted as a screen beyond the security fence. To facilitate maintenance of such extensive landscaping, a sprinkler system was installed that covers all but shrubbery immediately around the control buildings, and only these require hand sprinkling.

A hydro-pneumatic tank of 4,000 gallons capacity, of which approximately 35% is liquid, supplies the sprinkler and foam control systems.

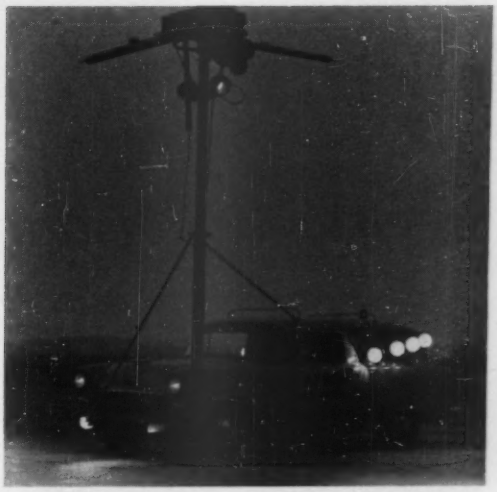
For foam control we provided a total of 68 heads, hollow cone, solid cone and flat spray, as physical arrangements dictated. Head discharge capacity varies from 1.90 gpm to 2.6 gpm at 60 psi. These have been located in all areas likely to experience foaming and subject to practical control measures.

Completion

The project was completed on May 25, 1960. The city financed both plant and sewers as a 1911 Act assessment, entailing an individual property assessment established at $326 per acre or about $85 for an average building lot.

Credit for continued interest in the work goes to Mayor Harold G. Thompson and other members of the City Council. The writer also wishes to express appreciation for support provided by various members of the city technical staff associated with the project, and especially Emil Scolari, Utilities Manager for the City of Lompoc. Plant superintendent is A. J. Stanich. ◄◄

Photographic Pavement Inspection



The Sur/Fax system field unit does it work at night when traffic is at a minimum and light conditions (provided by high-powered lights on the unit) are the best.

Modern photography has moved street and highway surface inspections from the field into the office. A precise strip camera, a specially equipped truck, a film projector and a reader-printer make up the necessary tools. The system, known as Sur/Fax and recently announced by Aero Service Corporation of Philadelphia, has performed successfully at the AASHO test area in Ottawa, Ill.

The truck, equipped with a battery of shielded, high-powered lights and a generator to provide power for the lights and camera, carries a stabilized, vibration-free continuous strip camera. It records highway or street surfaces as wide as 36 feet in a single traverse, on 35mm film, at a scale of one inch equals 36 feet.

The surveys are made at night at speeds of 20 to 30 miles per hour, generally between 1 A.M. and 5 A.M. to avoid traffic and daylight. The lights provide a constant level of illumination at a constant angle, thus obtaining the right degree of light and shadow needed to make faulting, scaling and cracking readily identifiable on the film.

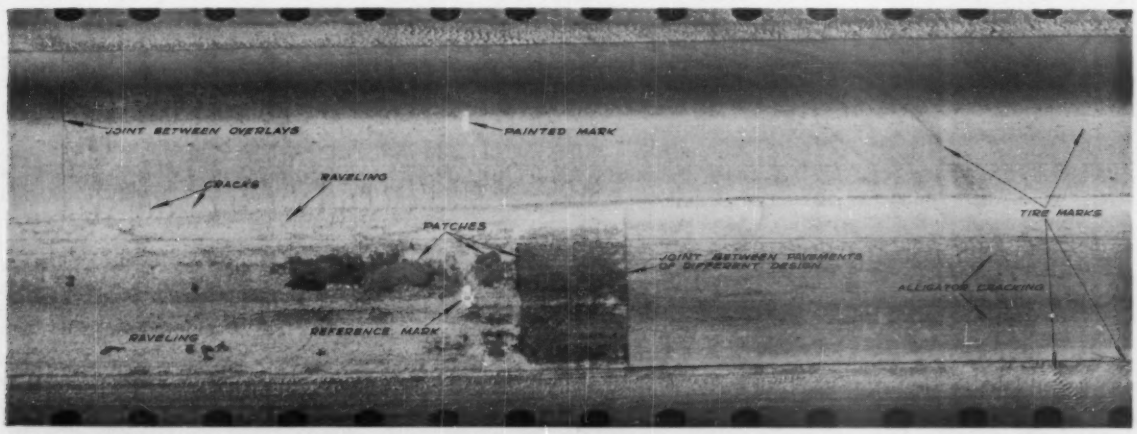
Film Projection

The strip film positives may be projected to sizes as large as ten feet square for group study or presentation to various public officials or government bodies.

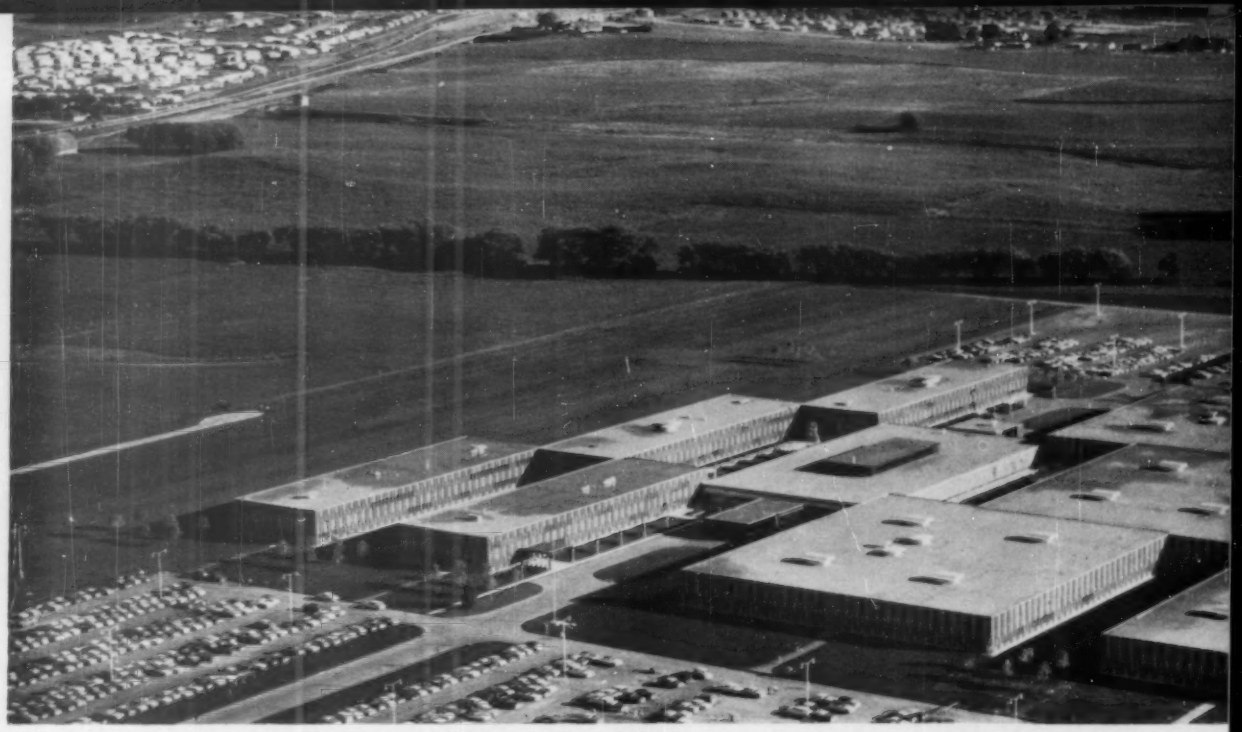
With the projector, the film may be viewed at travel speeds of about two mph (a slow walk) up to 30 mph. A section can also be stopped and "held" on the screen for detailed examination.

A specially modified 3-M Reader-Printer recently developed by Minnesota Mining and Manufacturing Corporation allows for more detailed analysis. This unit projects the film onto an 18-inch by 24-inch viewing screen. As pavement sections come into view which require continued study, a touch of the push button stops the film and makes a positive print. The print, delivered within 30 seconds, may be annotated and used as an actual work sheet by the maintenance crews.

For rigid pavements, the system provides such facts as cracks of all types, scale, spalling and faulting. For flexible pavements, the recorded conditions include alligator-type or other cracks, traveling, rutting, settlement and bleeding. These can be transferred to IBM punch cards for statistical analysis. ◄◄



This unretouched photo (except for annotations) shows the detail picked up by the camera during an actual test.



Rochesterites refer to the new IBM plant as a "Palace in the Cornfields."

How IBM Came to Rochester, Minn.

A city with an unbalanced economic base made sure it was ready for industrial growth of a favorable type

By **HAROLD E. KAMM*** Councilman

Generally one does not consider governmental organizations as competitive bodies. However, local governments certainly are. It may be trite but is worth repeating that a municipality is an independent corporation within the framework of a free people. In general, those living in that corporation prosper as the municipal corporation prospers and is progressive. They suffer if it becomes inefficient and backward. They prosper also as their social and cultural values show progress. And finally, they do well as their economic base is aggressive.

Worth noting also is the fact that today change is normal. Anyone who looks even casually at the last 25 years knows this. It is hard to realize that our little city of Rochester is scarcely more than an overnight trip from any place in the world. Anyone who still says that he "likes things as they are" is playing dangerously with his city and his nation of free people.

Superficially, Rochester had worked itself into a position where it could argue for a "status quo" with more justification than most. It has a world-famous medical center that employs a substantial portion of the city's working force. This draws people to the city from a wide area and employs physicians and other professional men and women who contribute culturally and economically to the city.

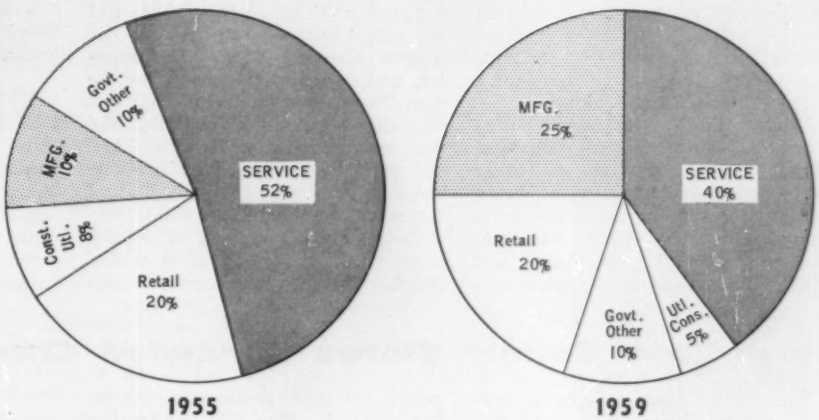
But it was obvious that this still was not enough. Anyone who looked objectively and thoughtfully would realize that Rochester was a city with a peculiar economic balance. Whereas other cities had from 25% to 50% of their people employed in manufacturing, Rochester had less than 10%. It offered little to anyone who did not expect to be a doctor.

People began to get concerned about this some six years ago. These included representatives of our labor unions, our commerce and trade, and members of the Mayo Clinic itself. In this fast-moving modern age Rochester was being left out.

Civic Action

The result was the formation of a civic corporation known as Industrial Opportunities, Inc. This was a grass-roots effort to carve out a portion of our rich heartland to make an industrial site, of a type that would really attract good stable industries. It is a common enough tool, used in many cities across the nation. But it has the real advantage of putting the whole city in back of the program, not just the Chamber of Commerce, a service club, or any other special-

* Mr. Kamm, at one time a college athletic coach, is a former manager of the Chamber of Commerce in Webster City, Iowa. He came to Rochester to head the industrial corporation that attracted these new manufacturing facilities in Rochester. Shortly thereafter he was elected to the Rochester City Council. He currently is on the staff of IBM as Program Manager of Voluntary and Vocational Education.



In four years Rochester increased its manufacturing employment segment from 10% to 25% of the total.

ized group. Every man, woman, and child in Rochester could be part of this movement.

After a spirited drive, Industrial Opportunities, Inc., raised $200,000. With this, they staked out an industrial site of some 65 acres divided into 12 convenient plots. The area was provided with access streets, utilities, convenient connections to two railway lines and one major highway. Moreover, the site could be virtually doubled if desired. This was choice land, not just waste unwanted property. This was an area where an industry would like to move just as a discriminating homeowner would like to move into a desirable neighborhood.

The impact of a good industry on a municipality is substantial. Careful studies available to us show that 100 new factory workers create jobs for 74 people in service activities such as filling stations and grocery stores. In general, they will create a demand for four more retail establishments, create some $360,000 more retail sales per year, and place about $270,000 on deposit in the banks. At the same time, the municipality has to be ready to receive a little more than 50 new school children and its street system has to accommodate itself to more than 100 new autos. You can expect over 100 new households because of these added 100 factory workers. In all, they will create conditions that will enable nearly 300 people, including themselves, to support themselves and add to the vigor of the municipality.

City Council Acts

One of the first steps that the city council took was to annex the industrial site selected, making it a part of Rochester, and start action moving towards the installation of water and sewer lines to it. They first annexed the 55-acre site, leaving the balance for future action.

However, the Council had done many other things of a constructive nature that made Rochester ready for this progressive move. As everyone knows, a factory worker today is no longer just a big burly uneducated brute. He is instead a skilled, knowledgeable technician. We hear much about automation today. Actually, this means that industry makes a capital investment of between $10,000 and $20,000 for every employee. It is often true that this employee has to work no harder than to push a series of buttons. But at the same time, he has to be intelligent enough to keep that $10,000 to $20,000 investment in top shape so that when he does push that button, saleable goods come out. Men who can do work of this nature need something more than just a beer joint for relaxation.

Our City Council has provided for this sort of thing. They have a long-range park program that has been helpful to our Mayo Clinic patrons and would be equally attractive to skilled technicians. We have a Civic Center, constructed cooperatively with the Mayo Clinic, and it has a stimulating cultural program. We have an aggressive program of municipal improvements such as water supply, sewerage,

street improvements. We have a well-trained fire and police force, good schools. This has been Rochester's tradition.

The city does not have the lowest tax rate nor does it want to; but it does go to great lengths to see that the taxes spent bring maximum benefits to its people.

In other words, Rochester was ready, when opportunity came.

Industry Investigates . . .

Opportunity came while we were in the midst of our drive to advance our Industrial Opportunities, Inc. The entire city was actively backing this program to put our economic life into a better balance and the support was stemming from *every* portion of the city. If there were those who did not endorse this progressive action, they were keeping remarkably quiet.

During this period, representatives of International Business Machines, Inc., paid us a rather quiet and unannounced visit. We in Rochester scarcely knew about it. Industrial investigators look at many things today—the health and aggressiveness of its municipal organization; the facilities that the city supports; the schools that it maintains; the reaction of merchants and the people themselves to "outsiders" who move into the community. They will make a reconnaissance that nobody knows is being made.

. . . and Decides

That is what happened to us. IBM had looked around in this area, had discovered that we were in the business of trying to industrialize and that *everybody* was back of the program. IBM settled here. Mr. Albert L. Williams, executive vice president, told us that they found us a city in good health, in good spirits. He was impressed by our "extras," the civic auditorium, the art center, civic theater, and fine musical groups in the city. The engineers, technicians and scientists who work for IBM like this sort of activity. He also liked our schools and our readiness to build more. And, of course, he was impressed by the Mayo Clinic.

Today, IBM has an $8,000,000 plant here, employing 2,000 skilled people. This has increased our employment growth about one third, since the change took place. The impact on other facets of our city is easily calculated.

Since then, the city council has not stood idle. This lists some of the more important achievements that demonstrate how governmental Rochester has responded to the stimulus:

- **annexed 1,950 acres of land**
- **added 35 miles of new streets, three water towers**
- **expanded the sewage treatment plant with the addition of two new digesters**
- **carried out 45 major public improvement projects in 1959**
- **scheduled and planned additional projects, financed by new bond issues.**

We are, of course, grateful that IBM did see fit to come to Rochester. We expect other firms of similar types to settle here or nearby. The point is that when the opportunity arose, we were ready, with an alert, progressive city government, and an equally alert, progressive-minded citizenry.

How Cook County Stores Cancelled Checks

For all the large volume of records shown, their storage and disposal are inexpensive.

The records are cancelled salary checks of Cook County, Ill. They are stored in the Cook County Comptroller's Office in Staxonsteel containers made by Bankers Box Co., Franklin Park, Ill.

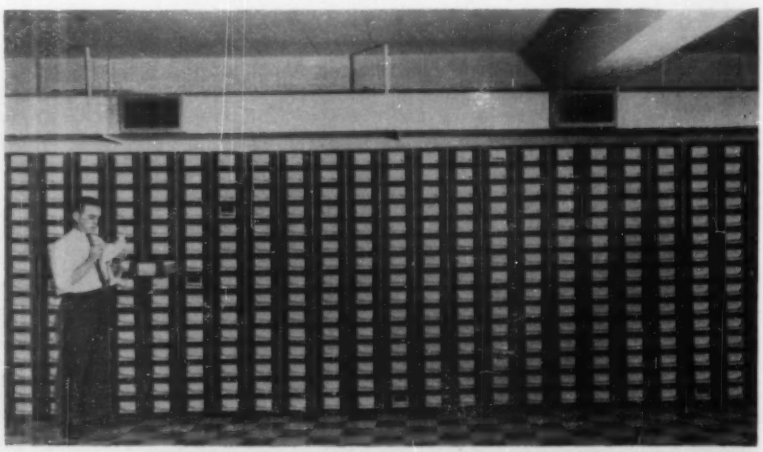
The original problem was one of storing cancelled checks. The Comptroller's Office had a conglomerate collection of storage files, mostly legal size, into which were thrown bundles of checks that went back 20 years or more. When demands were made to produce a given check, the department took the week off to hunt for the document.

Equipment

The local Bankers Box dealer was given the opportunity to survey the needs, suggest equipment, and keep recommendations within the budget of the office. Authority was given to provide an adequate room to act as record center, putting one man in charge. With space provided, selection of equipment was next in consideration. Uniformity, appearance, utilization of all space to best advantage, and instant reference were all major check points on each product considered for this job. The 502 Staxonsteel check file was selected to do the job.

As proof of success, the Comptroller was called on to produce a series of checks (cancelled) going back 15 years. Within five minutes he had them.

The installation is economical too. The installation over a ten-year period averages 42½ cents per year to house 5,000 checks in each individual Staxonsteel drawer. Moreover, this file eliminates the need and the cost of shelving, because the unit includes a steel framework permitting stacking. Each drawer operates independently. ◄◄



The Staxonsteel record storage containers at the Cook County, Ill. Comptroller's Office make for easy finding. Because of the inexpensive nature of the containers they can be destroyed along with the contents if complete confidential destruction is required.

Street trees will soften the lines and add charm to new areas of Chicago.

Trimmed branches pass through this Asplundh chipper for easy disposal.

A John Bean sprayer goes to work helping control disease and fungi.

Chicago's City Foresters

Not all foresters occupy lonely lookouts on the tops of western mountains. Chicago, the nation's second largest city, has a Forestry Bureau in the Department of Public Works that would make these romantic western foresters hustle. For example, last year, the Chicago foresters set out nearly 61,000 young trees in the two city-operated tree nurseries. In the same year, they placed nearly 22,500 trees in 131 sections of the city. Some of the planting provides trees in new sections and some replaces trees in older parts of the city. In addition, they planted trees, shrubberies and flowers at O'Hare International Airport and at four street-end beaches.

The foresters also conduct a running battle with Dutch Elm disease, and other tree diseases and fungi. This battle begins in April and continues through November. The spraying program is keeping Dutch Elm disease within bounds but the city hopes that further education will persuade the public to destroy all disease-breeding elmwood on private property.

The crews are well equipped to repair damaged trees, saving valuable growth and lengthening tree life. When a car hits a street tree, a forester will render first-aid to the damaged trunk.

Trimming trees and shrubs is an important part of their work; to dispose of the trimmed branches, they run them through a chipper into a covered truck. The chips then are used for a ground mulch. The crews remove dead trees, splitting them into logs which are processed into chips. Contractors then purchase these for the manufacture of wood siding. Last year the city sold 160 carloads weighing 5,965 tons and derived $12,527 from the operation.

A Vermeer stump cutter slices away the stump of any tree that has to be removed. The unit will cut a 40-inch stump, 12 inches above ground down to six inches below ground in 25 minutes rather than three to four hours when done manually. ◄◄

With a little skilled help, a damaged but otherwise valuable tree gets a new lease on life.

A man in a Mobile Aerial Towers Sky Lift can reach hard-to-get-at areas with complete safety.

We Do Better With Our Own Plant

McAlester, Okla., operates its own asphalt plant to mix road material as needed and still saves 25%

By **WILLIAM REED***
Public Works Sup't.
McAlester, Okla.

Necessity is the mother of invention—and also the basis for municipal ownership of certain facilities and provider of certain services normally considered within the domain of private enterprise. McAlester, with a population of about 15,000 persons, has some 115 miles of streets to maintain. Each year we used an average of 750 tons of asphalt just to repair chug holes, plus considerably more material for resurfacing and new construction.

Our nearest source of supply for patching material was 37 miles away. Often times the plant was not operating when we needed material most, and scheduling became a nuisance. Our cost, in delivered carload lots, amounted to $4.52 per ton.

As the need for asphaltic material grew, we decided that the only logical solution was to purchase and operate our own plant. Further investigation and visits to several cities having their own plants resulted in the purchase of a Model 1520 Roadmaster Asphalt Plant manufactured by the Wylie Manufacturing Co., of Oklahoma City. The plant is electrically operated and fired by natural gas and has a capacity of 20 tons per hour. A 5,000-gallon-capacity Hi-Way heat tank, which is completely automatic, operates in connection with the

* Since writing this article for THE AMERICAN CITY, Mr. Reed resigned his position as Public Works Superintendent for the City of McAlester to assume a position with a private firm.

Base preparation on new work includes thorough compaction using a sheepsfoot roller.

In order to expedite its street maintenance and construction program, McAlester, Okla., purchased this 20-ton-per-hour asphalt plant.

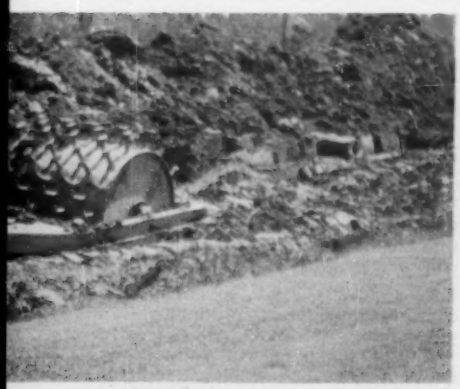
With a plant of its own, McAlester can mix asphalt whenever it is needed, making intersections like this a thing of the past.

plant. This tank furnishes asphalt to the plant and is also used to heat oil for bituminous and seal-coat surfaces.

A three-man crew operates the plant, the operator, one man to fill the bins using a Hough Payloader, and one man to watch feed and clean up around the bins. Our present operator was thoroughly trained under the supervision of a factory representative.

Once the control governing the plant has been set, operation is completely automatic. To eliminate stopping the plant or spilling mixed material on the ground, we arranged the access road to allow trucks to back in from both sides. As one truck completes loading another truck moves into the loading position from the opposite side.

A vibrating roller levels patches.



Following an analysis of local materials we designed this mix:

Sieve Number	*Percent Passing**
½ inch	100.0
⅜ inch	97.0
No. 4	52.7
No. 10	37.4
No. 40	34.0
No. 80	11.1
No. 200	2.7

*** Figures taken from a laboratory analysis and vary slightly in the field.**

For patching material we add 5.5% MC-3 asphalt to the above mixture and for hot mix we add 5.5% 85 to 100 penetration asphalt.

In most cases McAlester does its own street construction and maintenance work, using a work force consisting of one street superintendent, one foreman, six equipment operators, six truck drivers, and four part-time laborers who work about three months a year.

The equipment used to prepare the base and haul out or bring in material includes a Caterpillar No. 12 grader, one Ferguson double-drum sheepsfoot roller, a Tampco pneumatic roller, one eight- to ten-

City forces do new work as well as general maintenance and resurfacing. Here they apply the finish course to a new street.

ton Austin-Western steel-wheel roller, and three Chevrolet and two Ford dump trucks.

Base material consists of pit-run gravel and limestone chips. Because of water in the gravel pit we use a Quick Way ⅜-cubic-yard dragline to load gravel and also handle material shipped in by rail. The Payloader loads material on the street that must be hauled out.

After mixing, watering and rolling the base to the proper density it is swept with a Grace road broom and given a 0.3-gallons-per-square-yard application of MC-1 prime oil. We have our own 630-gallon Etnyre distributor.

Following a minimum 24-hour curing period, we apply a two-inch asphaltic concrete surface with a Barber-Greene machine. It is then rolled with the steel-wheel roller and allowed to cure for four hours before being opened to traffic.

For some time we used hand brooms to sweep out dirt and apply prime oil to prepare chug holes for patching. This method was very unsatisfactory as it required three men to stay ahead of a four-man patching crew.

Since financial conditions prevented us from purchasing an emulsion sprayer, we decided to build our own. This unit consists of a discarded 1½-ton fire truck equipped with two air tanks from an old street car and an air compressor discarded by a local milk company. The compressor is driven by the truck's power take-off and a line connects the compressor to one tank for the air supply. The other tank is filled with prime oil. We did purchase an emulsion spray gun which has connections for both air and prime oil.

Using this equipment, one man now blows out the dirt from the chug holes and applies the prime oil. He is followed up by a three- to four-man patching crew. After filling the hole and leveling the patch material with hand rakes, one man uses an Essick Vibrator patch roller, which does an excellent job of compaction.

Since the purchase of our plant in September 1958, we have surfaced 13 blocks of new streets financed by property owner participation. The property owners engaged a local contractor to install curb and gutter and paid for this directly. The city did the balance of the work and charged each property owner $2 per front foot.

We also resurfaced five blocks of old asphalt streets and 18 intersections. Many of the intersections required surface drainage corrections and in these cases our crew stripped off the old surface before applying the new. This is considered general maintenance work and is paid for out of the general fund at no direct cost to the property owners.

As previously mentioned, we formerly paid $4.52 a ton for asphaltic concrete including 25 cents a ton for unloading. Since purchasing the plant we have produced a total of 5,684 tons of asphaltic mixture at a total cost of $3.29 a ton, or a savings slightly in excess of 25%. Thus to date our savings of $6,991.32 is more than one-third of the $18,000 we paid for the plant and at this rate we will have paid for it out of savings in another two years. ◄◄

How Washington Cities Share State-Collected Revenues

Municipalities in the State of Washington receive a share of state-collected revenues on several bases. These are listed by the Association of Washington Cities in a recent study for use in preparing preliminary budgets by local governments. The table shows estimates of funds to be distributed in 1961.

Cities may use their share of liquor revenues for any municipal purpose. Additional street assistance is realized through State Highway Department expenditures on primary and secondary highways. In 1959 this state expenditure within cities totaled $24.6 million.

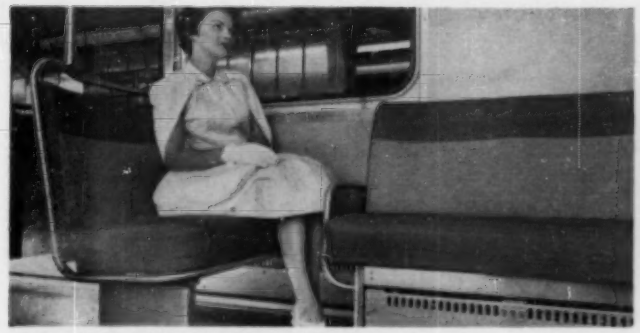
The 35 cities of the state with paid fire departments receive for firemen's pension funds a 45% share of the state tax on fire insurance premiums. This is estimated to be $136.72 per full-time fireman for the current year.

Allocations of state-collected, locally shared revenues on a per-capita basis have risen approximately 44% since 1953. The only other major non-property tax revenue available to Washington cities is the city business license tax.

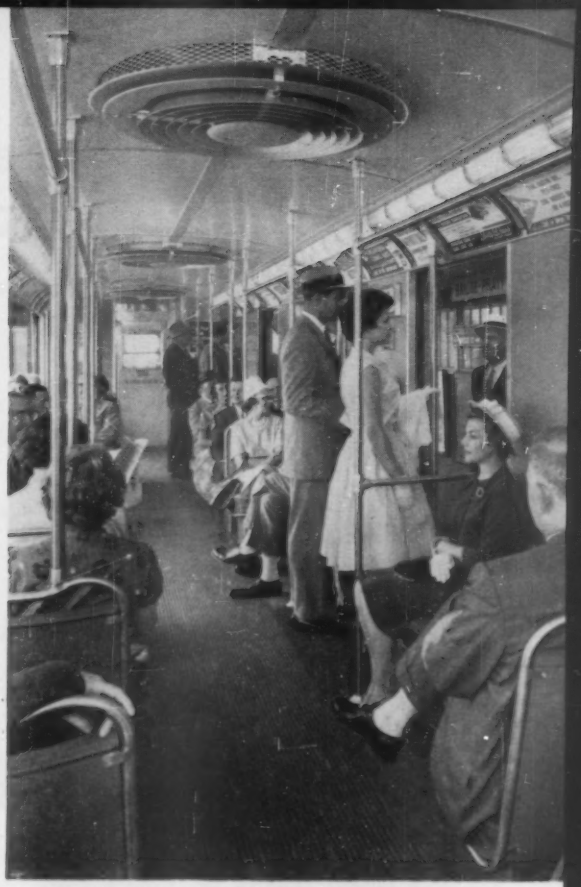
The state-shared revenues are summarized in Information Bulletin #215, issued by the Association of Washington Cities, 250 Smith Hall, University of Washington, Seattle 5.

15% of the first 5¢ of the state gasoline tax, to be used for street purposes only	$4.01	per capita
40% of the State Liquor Board profits	4.80	" "
28% of the 15% liquor sales tax	1.72	" "
17% of the motor vehicle excise tax—an *in lieu* personal property tax to be used only for fire, police and health	2.64	" "
Total municipal allocations from state funds	$13.18	" "

New stainless steel cars, for their size, the lightest weight rapid transit cars ever built, with an operating cab at each end. The balance of 270 cars for the line will be built as permanently-coupled pairs, with one control cab in each car. Four ventilator hoods give a distinctive roof-line to the cars.



Seats have spring-upholstered bases and contoured backs, covered in Vinyl-coated duck. Electric strip heaters are mounted at the floor along the side walls and under the seats.



Three wide doors in each side of Philadelphia's new subway-elevated cars minimizes congestion and speeds loading and unloading. The car has 54 seats and standing room for about 120 people. The rubber flooring is non-skid.

Philadelphia Buys a Fleet Of Subway Trains

By **W. T. GENNETTI**
Commissioner of
Public Property

Philadelphia has bought $25 million worth of new trains for the 53-year-old Market-Frankford subway-elevated line. The 270 new stainless steel models built by the Budd Co., Philadelphia 32, Pa., replace and will do the work of 315 older cars.

The new cars are faster, larger, and lighter, quieter and pleasanter. Their cost will be wholly repaid to the city treasury out of transit revenues.

The Market-Frankford line and the Broad Street Subway are the backbone of the local urban transit system. The Broad Street line courses eight-and-a-half miles down the middle of Philadelphia. The 12-mile Market-Frankford line crosses it perpendicularly beneath City Hall at the Broad-and-Market heart of downtown.

Related to the Market-Frankford line is a trolley system sharing part of the mid-town tunnel. Cars on the three lines, collectively, travel 20 million miles annually and transport 150 million passengers. The three systems represent the bulk of the City's $222 million investment in transit facilities.

Serving more than a quarter-million riders on a busy day, the Market-Frankford line still is the most heavily used transit artery in the Delaware Valley.

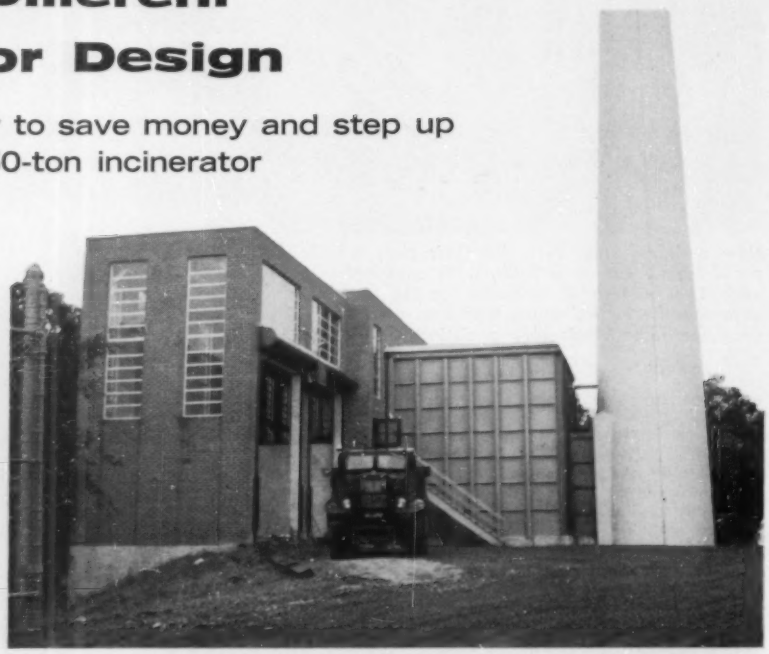
Plans from the start called for scrapping all old equipment. Inclusion of even a few old trains would mean reducing the speed and acceleration of new trains and increase the spacing necessary between trains. It bears mentioning that the 100 city-purchased cars added during the 1920's never had been compatible with older equipment. All cars in the new fleet, of course, are operationally compatible with the old equipment.

The old cars carried 44 persons riding sidewise. The new cars have more comfortable transverse seats for two and each car seats 56 passengers. ◄◄

Something Different In Incinerator Design

Rye, N. Y., finds a way to save money and step up efficiency in its new 150-ton incinerator

By VINCENT BAUM
Assistant City Engineer
Rye, N. Y.



Architectural features of the Rye incinerator include long vertical windows, buff-colored brick, and a completely painted interior.

Designed by the late Henry W. Taylor of Freeport, N. Y., the Rye incinerator contains several features that we feel are of particular interest. These include a weighing arrangement that eliminates the need of a scale house and scale man; the use of a monorail hoist rather than a crane; a hydraulic fly-ash removal system; and a residue removal system that cuts dirt and dust to a minimum. Other features helped to hold down the cost to about $460,000 complete, including landscaping, or about $3,000 per ton of rated capacity.

The facility replaces an obsolete floor-charging plant located at the same site and has sufficient capacity to serve the maximum possible population of Rye based on land area and zoning. Slightly more than one year of actual operation has proven it to be well designed.

Noticeable Differences

The first noticeable difference from most plants is the location of the storage bin. Ours is located in line with the two furnaces, permitting the use of a 6,000-pound capacity P&H Hevi-Lift hoist, suspended from a monorail, instead of a large crane. This unit, equipped with a 1½-yard Blaw-Knox bucket, has a lifting speed of 75 feet per minute and a travel speed of 190 feet per minute. Control is full magnetic, counter-torque lowering, with cam masters and hydraulic brakes on the trolley motion. Electrical characteristics are 220/440 volts, 3 phase, 60 cycle.

Another noticeable feature is the absence of the scale house. The 10x24-foot concrete platform is located in the entrance drive about 50 feet from the two dumping bays. The dial for the Fairbanks, Morse electronic scale is located on the hopper charging floor by a service door which overlooks the platform. This arrangement permits the charging man to operate the scale and record incoming loads as well as take care of his furnace-charging duties.

The storage bin, 32 feet long, 16 feet wide and 19 feet deep holds 360 cubic yards. Trucks discharge their loads into the bin through two large doors.

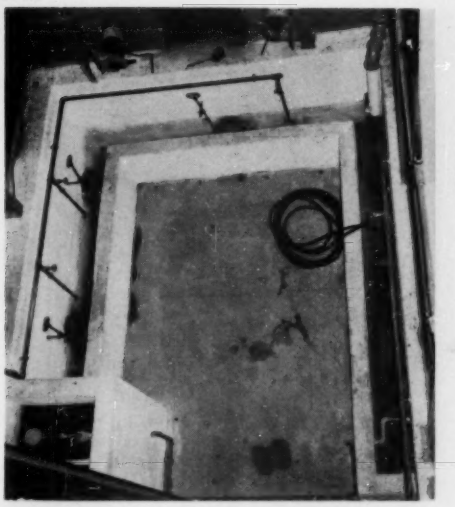
Refuse burning takes place in two 75-ton-per-day Nichols Monohearth furnaces of 12-foot outside diameter and 9⅔-foot inside diameter. The accompanying table lists furnace design data. The U-shaped combustion chamber has 20-foot legs and is 27 feet, 10½ inches across from leg to leg. The chamber sections are six feet wide by 23 feet high. By means of slide gates, we can close off sections of the chamber to permit cleaning one half while one furnace and the other half of the combustion chamber remain in service.

We feel that our fly-ash removal system is rather interesting and unusual. A wet bottom catches the ash that drops out in the combustion chamber and baffled flue leading to the stack (the latter is 12 feet long, 3½ feet wide and 10¾ feet high with two over-and-under baffles). A series of water sprays then washes the sludge through ports into an open concrete flume located inside the U (but outside the chamber walls). This flume drains to a sump at one end equipped with an automatic flushing device. From here the fly-ash sludge or slurry flows by gravity to two settling basins at the rear of the plant. The sludge settles to

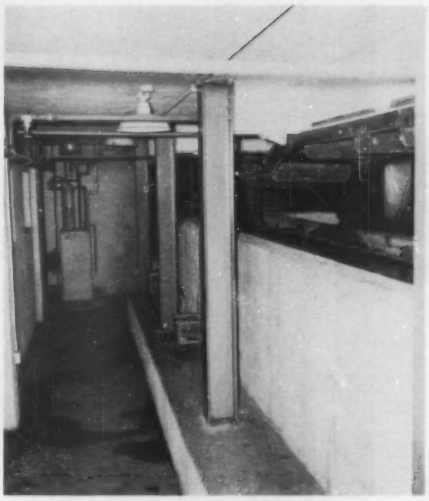
FURNACE DESIGN DATA

Item		Per Unit
Horizontal grate area		73.4 square feet
Burning rate	approx.	85 pounds/hour/sq. ft.
Furnace volume	approx.	810 cubic feet
Flue to combustion chamber	approx.	227 cubic feet
Combustion chamber*		6,600 cubic feet

*Single combustion chamber serves both furnaces.



Fly ash flushed from the combustion chamber flows into this concrete flume to the sump (lower right) and then to a settling basin to the rear of the incinerator.



A flight conveyor system transports residue dumped into this concrete quenching trough (right) to the storage bin.

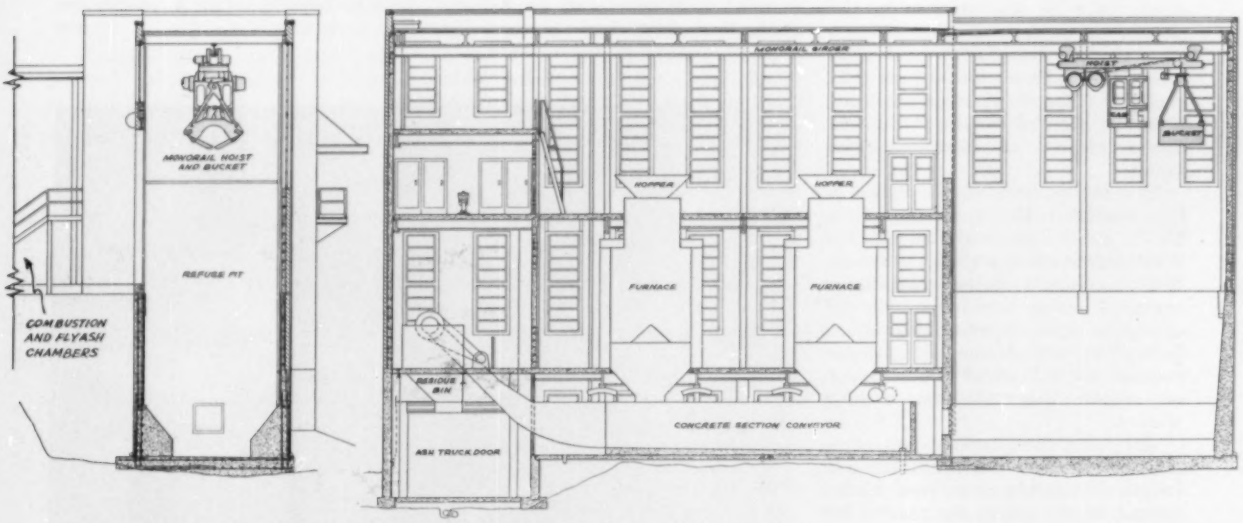
the bottom while the water flows over a weir to an adjacent swamp and stream. When one basin is full the second one is put into service and a backhoe is brought in to clean out the settled sludge.

Another feature, not new but certainly worthy of mention, is the location of the Beaumont Birch motor-operated charging gates above the charging floor. This permits ready access for maintenance and repair.

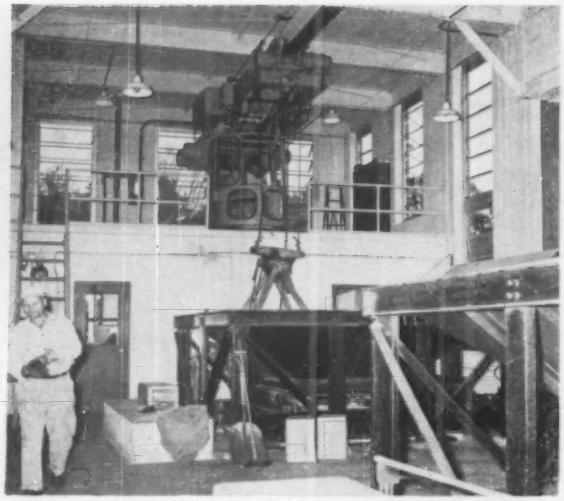
Our ash or residue handling system also merits more detailed description. The ash hoppers of each furnace are 9⅔ feet in diameter at the top and taper to three feet in diameter at the throat. These hoppers discharge directly into a three-foot-wide, 5¼-foot-deep by 35½-foot-long concrete trough filled with water. A Beaumont Birch roller chain drive, flight-type conveyor running through the trough transports the quenched residue to a steel ash-storage bin. Several nozzles pointing in the direction of travel produce a current that carries the suspended matter to the discharge end to be picked up by the flights as they leave the tank by way of an inclined chute or ramp leading to the storage bin. From the bin the residue falls into a truck and is hauled to an adjacent dump site for final disposal.

A single radial-brick, refractory-lined chimney, 7½-foot inside diameter by 103 feet high, serves both furnaces. Should forced draft be required, it can be supplied by two American Standard forced-draft blowers of 3,600 cfm capacity each.

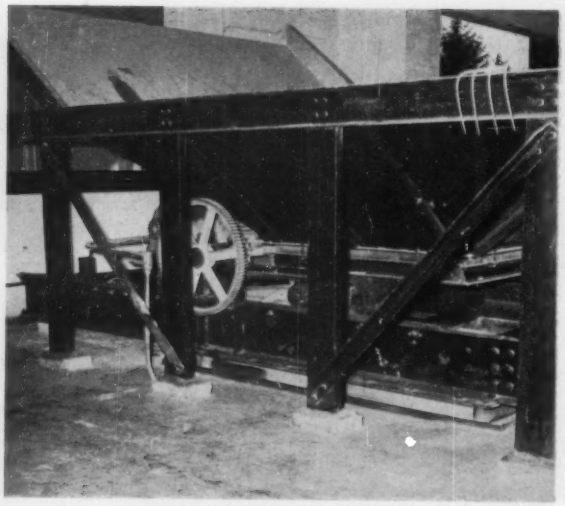
Since the facility is not manned constantly, we installed a fire



These cross-section views show the in-line arrangement of the furnaces and storage bin, the residue removing system, and the monorail.



The large amount of window area provides ample light and ventilation to all floors and to the charging floor in particular.



Raising the charging gates above the charging floor provides easy access for maintenance and for repair.

alarm system that sounds an alarm in the police station should a fire occur in the storage bin.

At present our summer schedule calls for the use of both furnaces on Monday and Tuesday and at times on Wednesday. Thursday is clean-up day, during which the entire plant is shut down (except that refuse is still dumped into the storage bin). Both furnaces again operate on Friday. Although we do not burn on Saturday, the plant is open to receive refuse trucks.

Collection in Rye is by private contractor, under contract to the city. The schedule calls for three pick-ups per week in the two districts—on Monday, Wednesday and Friday, and on Tuesday, Thursday and Saturday. Several private contractors also work in the city providing service to those commercial establishments wanting special service or more frequent collections. At present the plant disposes on the average some 40 tons of refuse per day.

Rye's new incinerator was built under the overall supervision of Ray Murphy, City Engineer. Responsibility for maintenance and operation rests with Edward P. Dempsey, Superintendent of Maintenance, and Dominick Stella, Plant Foreman. ◄◄

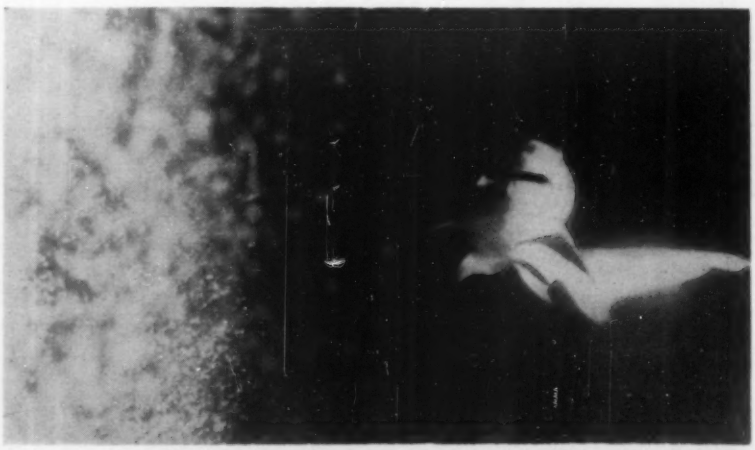
Compressed-Air "Fence" Forms Shark Barrier

A simple air compressor, of the type used in municipal maintenance work, may be the answer to the problem of protecting ocean bathers from sharks. Late last summer, attacks by sharks on the eastern seaboard beaches disrupted recreational swimming and damaged the economic season of many seacoast towns.

In a test project off the beach of the Stockton Hotel in Sea Girt, N. J., site of a shark attack, the Worthington Corporation, Harrison, N. J., donated its portable, gasoline-operated compressor for use in the operation of an experimental "shark fence," a new device using compressed air to fend off the intrusion of sharks into shallow bathing waters.

Air from the 85-cubic-foot compressor is forced through a 350-foot length of flexible punctured tubing placed on the ocean floor some 200 feet off shore and creates a wall of bubbles which the sharks apparently are unwilling to penetrate.

The inventor of this protective measure, Frank Arpin, tested it in a tank of 60 sharks at an Asbury Park, N. J., aquarium. He found it to be effective in preventing sharks from crashing through the unique bubble barrier, after a continuous five-hour test. ◄◄



In a test tank a nine-foot shark veers away from the imposing bubble barrier made by the 85-cubic-foot air compressor.

A rew of the 1,150 record books microfilmed at Whiteside County, Morrison, Ill.

Whiteside County, Illinois

OFFICE OF _____

REEL NUMBER _____

RECORD _____

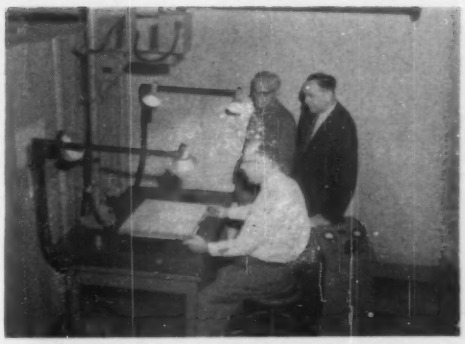
FROM _____

TO _____

DATE _____ OPERATOR _____

Deputy Clerk Westendorf operates Whiteside County's Recordak Microfile Model D Camera, as he microfilms one of the County's 1,150 record books. Looking on are: the author (right) and William Ottens, County Clerk.

Log sheet that records information as it is microfilmed from the Whiteside County record books.



Saving 122-Year-Old Records

By **JOHN E. HALL**, Circuit Clerk and County Recorder
Whiteside County, Morrison, Ill.

Keeping the personal and public records of its citizens in handy, readable, protected form is a challenge to the clerical departments of any municipality.

Whiteside County Courthouse at Morrison, Ill., initiated a microfilming program for the offices of the circuit clerk, county recorder, and county clerk that will effect a multi-thousand-dollar savings for the more than 60,000 residents of the county and provide them with more readable and available public records.

The program has the blessing of Frank Allen, A. L. Haglund, and Howard Martin on the County Board of Supervisors, who made the funds available; and the assistance of Watland, Inc., Chicago firm of microfilming specialists.

Shortly after our election in 1956, we found that the first 325 books of 1,150 in our office were unreadably faded with time and badly worn from handling. Each of these books—12x18 inches and 4 inches thick—contains 800 pages, covering general documents, release and assignment documents, deeds, mortgages, and soldiers' and sailors' discharge records dating from as far back as 1838.

To hire extra help to copy, retype, proofread, and transfer into newly bound books would cost the county taxpayers $11,000. Result: our microfilming program.

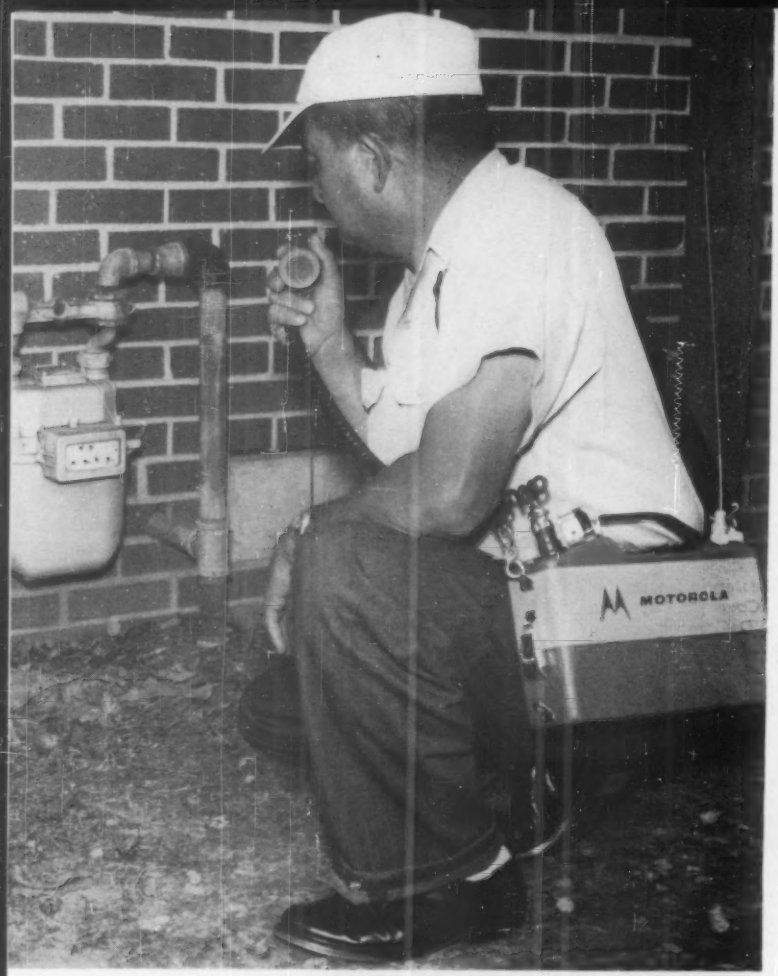
All the information in 28 books is placed on 14 microfilm reels occupying the space taken by just one book.

During this first year, the 1,150 books are being microfilmed at the rate of about six books per day. The 325 oldest are microfilmed first in both positive and negative form, and the books themselves retired. The positive film roll will be kept for reference. The negative roll is sent to Springfield, Ill. for storage and safekeeping in the State Archives Library.

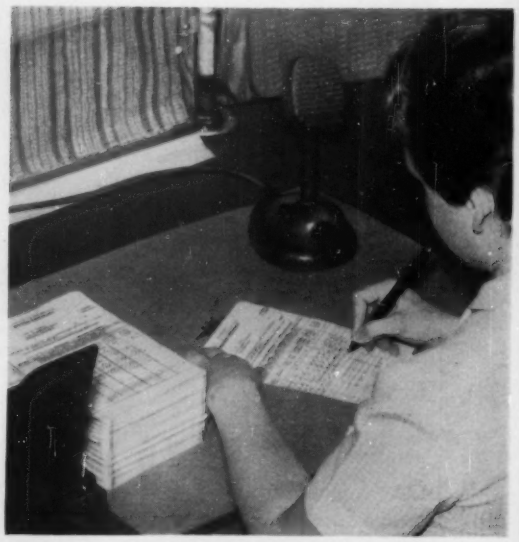
As the exposed reels are completed, they are sent to Watland's microfilm laboratory, Blue Island, Ill., where they are processed under controlled conditions to insure permanency.

Positive microfilming of birth, death, and marriage certificates is expected to begin in the County Clerk's office during the latter part of 1960.

In the books already copied in the Circuit Clerk and County Recorder's office, there is self-evident proof that microfilming and projection of records in the reader make the information much clearer for reading and making notes. ◄◄



As the meter reader reports the reading from the field . . .



. . . the control operator posts it onto a translucent combination ledger-card statement form.

From Meter to Ledger by Radio

. . . plus machine duplication of ledger card-statement form saves time and money for Dublin, Ga.

By **A. F. GEESLIN**
City Clerk
Dublin, Ga.

There is no more meter-book reviewing nor running back to check a reading, now that we have adopted our broadcast-to-diazo system of gas and water meter reading and billing. This system of on-the-spot broadcasts from the meter readers to the billing clerks helps eliminate errors and saves time and money.

Instead of a book and pencil, each of our meter readers now carries a Motorola Handie Talkie radio phone. When at a customer's meter, the reader calls in the reading to the Billing Department, where the control operator posts it onto a translucent combination ledger card-statement form with a Rapidograph pen. The ledger card forms are arranged in the same sequence as the meter reader's route, which facilitates synchronization between the field man and the control operator.

Should the reading look "out of line," the control operator requests a re-check while the reader is still at the meter. As the meter reader walks to the next meter, the control operator computes the consumption, extends the amount, and places the card in the file box for reproduction on a white print copying machine.

In less than 30 seconds, an office clerk turns out an exact reproduction of the original ledger card-

A second clerk makes an exact reproduction of the original on sensitized paper for billing purposes.

Both gas and water bills are rendered in this way. The top portion of duplicate copy is returned to the office by the customer with remittance.

statement by using a desk-sized Ozamatic* white-print machine. This copy, printed on sensitized single-coated paper, is perforated so that the stub which shows the name and account number can be mailed to the customer and returned with the remittance, assuring proper credit.

Under the old system our meter readers posted each reading into a meter book, and turned the books over to the Billing Department upon the completion of each route. The billing clerks then had to check each book for obvious errors, and in cases of a sudden increase or decrease in consumption, had to send the reader back for a field check. Also, the readings had to be transcribed to a stub-type postcard with a posting machine and all bills proof read for accuracy before mailing. With 6,000 water and gas customers on our list, this was a time-consuming operation.

Our new "direct broadcast-direct copy" system provides numerous benefits such as the elimination of the following:

- **meter book review which required about ten days**
- **field re-checks of errors caught in the review process**
- **the need to change approximately 100 addressing plates per month, which required about eight man-hours**
- **addressing 6,000 postcards**
- **proof reading of postings**

These benefits have enabled us to reduce billing time from 15 days to two days. Another benefit of the new system is positive control of the meter reader's report, something all utilities must contend with. Since the meter reader does not have a record of previous readings he cannot fake or average out a reading. Thus, our customers can be certain that their meter is being read correctly every month.

Dublin's new system, devised through the cooperative efforts of Mayor J. Felton Pierce, Ozalid representative L. D. Ramsey, and the writer, is far superior to the method formerly used and worthy of consideration by other utilities. ◄◄

* Ozalid Div., General Aniline and Film Corp., Johnson City, N. Y.

Richmond's airport has tobacco plants as part of its landscaping to direct attention to its famous tobacco crop and industry . . .

Safety First at Richmond Airport

Sound planning and energetic effort have transformed a drab military fighter base into a beautiful, modern, functional, safe airport

By **ROBERT S. HOPSON***
Director of Public Works
Richmond, Va.

In 1957 the CAA selected the Richard E. Byrd Flying Field at Richmond, Va., as the most ideally operated and equipped, and as representative of civil airports in the United States. This record did not just happen—it was the result of careful planning by the City of Richmond and a thorough study of methods and devices by Anthony Dowd, Airport Manager, who, at 36, is the youngest manager of a major airport in the country.

For a ten-year period ending January 1, 1960, Byrd Airport experienced no aircraft accidents or emergencies that could be traced either to faulty navigational aids or deficient airport facilities. Further evidence that Byrd Airport is a safe landing field is testified to by the thousands of aircraft diverted to Richmond from other fields during periods of bad weather.

In 1942 we leased to the United States Government over 1,200 acres of land, part of which comprised our commercial airport. In 1947 the War Assets Administration returned to Richmond over 2,000 acres on which was located one of the finest army air corps fighter training bases in the country.

Conversion Problems

However, conversion of a wartime military air base to civil purposes presented many complex problems. Well-lighted runways had to appear in place of the dimly lit camouflaged ones. Wooded areas had to be cleared and graded to provide safe and effective movement of aircraft on the ground, and also during landing and taking off. Buildings had to be converted to serve the needs of the public instead of the military. Runways, taxiways and parking areas had to be improved to accommodate civil aircraft of higher wheel loading and longer landing and take-off characteristics than those of the military.

Civilian-Type Plan

In all, it required a thorough civilian-type design, fitted to an overall master plan, and this followed by prompt action, to convert the airport to the needs of the public. In all of this were the many safety improvements that have brought distinction to air travel here.

The first step was to move the air traffic control tower from the center of the landing area where the operator could see only one runway to a position where he could see, at a glance, a view of all runways, taxiways and loading areas.

Next, we installed Sylvania medium and high-intensity approach lights on the instrument runway,

*As Director of the Department of Public Works, Mr. Hopson is responsible for the operation of Byrd Field.

. . . but on the field, business-like equipment such as this VHF Omni-Range insures safety of the flight.

and placed modern, 360° reflectors the length of each taxiway. We also extended two runways, one to 8,000 feet, which permits landings and take-offs by any civil aircraft now in service.

We resurfaced all runways and main taxiways with asphalt, improving their comfort qualities as well as their load-bearing capacities. We also installed subsurface drains at each side of the most poorly drained runway, to strengthen its load-bearing characteristics.

Directional signs and yellow center lines on all taxiways lead the pilots to the Terminal Building. These greatly reduce the possibility of aircraft taxiing into areas other than those designated. Barricades, gates, and signs restrict other than authorized motor vehicles from entering the landing and taxi areas.

Safety Precautions

Many new safety rules control the use of the airport by the general public. Among these are traffic and taxi patterns, two-way radio requirement, aircraft parking restrictions, and motor vehicle control.

We cleared all trees and natural obstructions from the approach areas of each runway. We painted and identified the runways by markings in accordance with their designated category. The compass bearing of these runways offer the maximum in choice with the minimum in cross-wind component.

In addition, many new electronic installations substantially improve the air movement of aircraft to and from the airport. Some of these navigation aids are:

1.—A very high frequency (VHF) omni-range, which transmits a radio signal simultaneously to all points of the compass. Upon receiving this signal, a pilot can determine his exact compass bearing from the airport.

2.—High-intensity approach lights extending over 3,000 feet from the foot of the instrument runway. These lights improve the pilot's reference to the ground during inclement weather and have been reported visible by pilots as far away as Baltimore.

3.—An ultra-high frequency (UHF) direction finder which indicates to the air traffic controllers the direction from the airport of aircraft calling in by radio.

4.—A weather radar system for use by the United States Weather Bureau at Byrd Airport. This system scans the skies at and around the Richmond area and indicates on a screen the intensity and configuration of cloud concentrations.

5.—A transmissometer which measures the visibility.

6.—A ceilometer which measures the height of the ceiling at the airport.

The transmissometer and ceilometer are extremely valuable devices in that by use of electronic principles the human element is eliminated in determining these critical measurements.

Sequence Flasher

At present, work has begun on a sequenced flasher to be installed on the high-intensity approach lights. This flasher will produce the effect of a ball of light beginning 3,000 feet from the runway and "shooting" to the end of the runway. During inclement weather a pilot must make his approach to an airport by compass and radio bearings only. When in the final approach, the pilot has to rely entirely on instruments in the cockpit. However, the actual "touch down" must be made by sight. When the aircraft is nearing the end of the runway on descent for landing, the flashing ball of light aids the pilot in rapid transition from instrument flying to visual flying for final contact with the ground.

We have completed detailed plans for the installation of an Airport Surveillance Radar Unit in the fall of this year. This unit will indicate on a screen the location and course of aircraft in all of the Richmond area.

All this adds to an air facility for Richmond that matches the vigor of modern air traffic with unexcelled safety and convenience. ◄◄

These 12- to 14-yard-capacity, compaction-type rubbish trucks lift, empty and place back in the ground a standard rubbish receptacle.

In Germany, water hydrants are all below the surface of the ground.

United States—German Cities Compared

More alike than different—German cities are cleaner, have more open spaces; use more manual labor and spend more for "culture"

By JULIAN H. ORR*
City Manager
Portland, Me.

Visiting Germany was not as strange as I had anticipated, for cities there were more alike than unlike our own but the differences in many cases were stimulating.

To begin with, municipal government there is one of three basic types. In the former U. S. Zone the council and mayor are elected directly and the mayor presides without vote. Department heads, appointed by the council, are responsible to the mayor. In the former British zone a council-appointed executive, somewhat similar to our city manager, serves for a 12-year term. He is not easily removed from office and if not reappointed is entitled to 50% pension. In these cities the mayor is chosen by the council from among its membership.

Other cities have a more traditional German form. The mayor is elected by the council, as are the magistrates who direct the major departments, and together they share administrative and policy-making powers.

In Germany, city councils are substantially larger than here. Ulm, a city of 93,000, has a 36-man council; Munster, with 170,000, has 42; Duisberg, with 500,000, has 60.

Budget practices are similar to ours. However, the major source of income is a tax on trade which is levied on net income and comprises a third of the municipal revenue.

The small size of fire departments in Germany is amazing and is possible in part because their structural conditions result in a smaller number of fires. Their equipment and techniques also differ from ours. They use a bayonet-type fast coupling which does not require a spanner, yet is strong and tight and seems superior to our threaded couplings. Their complete elimination of above-ground hydrants would seem to offer advantages where snow would not be likely to obscure the hydrant.

Police departments are larger than in the United States. Cities of 60,000 to 100,000 have an officer for every 450 people compared with one for every 580 here. Police

Portable toilet units are driven to spots in German cities where unusual crowds are expected and additional sanitary facilities are needed.

* Last summer, Mr. Orr and seven other American municipal administrators toured ten German cities as guests of the West German government.

officers are trained for three years, their salaries are one grade above those of other municipal employees and they are retired five years earlier, at 60.

Public Works functions are similar to ours. Cities have excellent modern equipment but use more manual labor. The cleanliness of the streets in Germany is impressive. Here people are taught to care about street cleanliness and, in addition, street flushers, scrubbers and sweepers are widely used on frequent schedules.

Compactor-type 12- to 14-yard-capacity trucks are used for rubbish collection. Standard metal receptacles that the truck actually lifts, empties and places back on the ground are required.

A special unit widely used in Germany is a toilet trailer. These are located where large crowds are expected and additional sanitary facilities are necessary.

War-damaged cities have given planners an opportunity literally to re-build from the ground up. The use of open green space is most impressive. Here forest preserves, parks, lakes and other open areas are often in close proximity to the city's center. It appears, unfortunately, that our own American cities have in many cases failed in this vital planning step.

Essen has successfully demonstrated the value of a downtown mall. In 1958 several blocks closed to vehicular traffic were repaved for pedestrian use. As a result, businesses in the area have experienced an increase in business of 20%, and the entire downtown area will be blocked off to permit only pedestrian traffic. Of course, the success of the plan depended to a large degree on the provision of adequate parking and traffic facilities.

Cultural Activities

Every city of any consequence has its own theatre, opera, orchestras, and other activities. Ulm, with a population of 93,000, offers a good example. A glance at the Ulm budget for cultural activity reveals some items which would not be found in a comparable American city:

City theatre	$664,325
Contributions to private musical groups	12,875
Art museum, including $10,000 for purchase of new art works	52,175
Natural history collection	2,800
Preservation of old traditions	79,275
Encouragement to artists	1,400
Set aside toward new building for artists to congregate and to exhibit	37,500
Popular library	60,275
Technical library	54,750

The total expenditure for cultural activities in the 1959 Ulm budget was $983,000.

It is fair to say, however, that the similarities are far more numerous than the differences between German and American cities. A municipal administrator from either country has no difficulty in feeling at home as he tours the cities of the other nation and examines their municipal activities. ◄◄

A Do-It-Yourself Wash Rack

Trucks get a quick clean-up by passing through this city-built wash rack at the close of day.

Convinced that a more efficient method of cleaning its motor vehicles was possible, the Temple, Texas, city engineering department set about designing such a device. The design is a simple one and includes a blacktop approach and aprons. The rack itself is a six-inch concrete slab 14 feet wide by 33 feet long sloped to a center grate drain.

The framework of five inter-connected arches is fitted with 45 Spraying Systems jet nozzles set at intervals to provide good spraying coverage. In order to confine the sprayed water the sides have a six-inch curb and compacted rock is banked on the apron eight inches above the curb. The drain is connected to an 18-inch steel pipe.

The rack complete with surfaced approaches and all necessary piping connections cost $896.36. Keith Dodgen, city manager, calls it one of the finest pieces of equipment the city has for preventive maintenance.

With the new wash rack each truck is washed at the close of the work day and stored in sheds which also were constructed during the year. In this way all dirt, mud, grit and road scum which tend to abrade or corrode are removed from all cars and trucks and each unit starts the next day clean and free from damaging particles.

Mr. Dodgen finds that employees are not only more prone to treat a clean machine better, but seem to work more efficiently with such a machine and are more inclined to handle it carefully. Moreover, their morale generally goes up when they have "clean" equipment to work with.

Interested city officials can obtain a drawing of the rack by writing directly to Mr. Dodgen, City Manager, Temple, Texas. ◄◄

Hydraulic Dredge Speeds Sludge Recovery

. . . and helps Dayton, Ohio, make greater profits from its lime-recalcining operation

By **W. T. EIFFERT**
Director, Water Dept.
Dayton, Ohio

Our new dredge, appropriately named Recovery, serves as a profitable enterprise in several different ways. Acting as a pumping unit to deliver waste sludge to a recalcining operation for conversion back to quicklime and re-use, the dredge makes it possible to produce up to 40 tons per day in excess of our own needs, the excess being sold to other cities. Also, by removing stored sludge in record time from a lake in the path of a new expressway, the dredge enabled the state, federal government and city to save $62,000 in highway construction costs with the state and federal government reimbursing the city for the cost of sludge removal. Finally, the dredge will be ultimately moved to a system of lagoons comprising Dayton's well-recharging operation, making maintenance of the lagoon system a low-cost operation.

Sludge Recovery

Dayton's water has a high concentration of calcium bicarbonate, a total hardness of 375 ppm, making softening of the water a must. This we do by the lime-soda process, and for years the calcium carbonate sludge was wasted to nearby lagoons and an abandoned gravel pit. In November 1957, the Department began operating a lime-recalcining plant, and instead of purchasing lime and wasting sludge, we reversed the process and started to reclaim the sludge and actually obtained an excess of lime. This, because the recalcining plant could produce up to 150 tons per day whereas only about 100 tons per day are presently needed. (See THE AMERICAN CITY, May 1959, page 101).

Unfortunately, the pumping system initially employed proved inefficient in terms of time and work output to such a degree that it was actually restricting the output of the kiln.

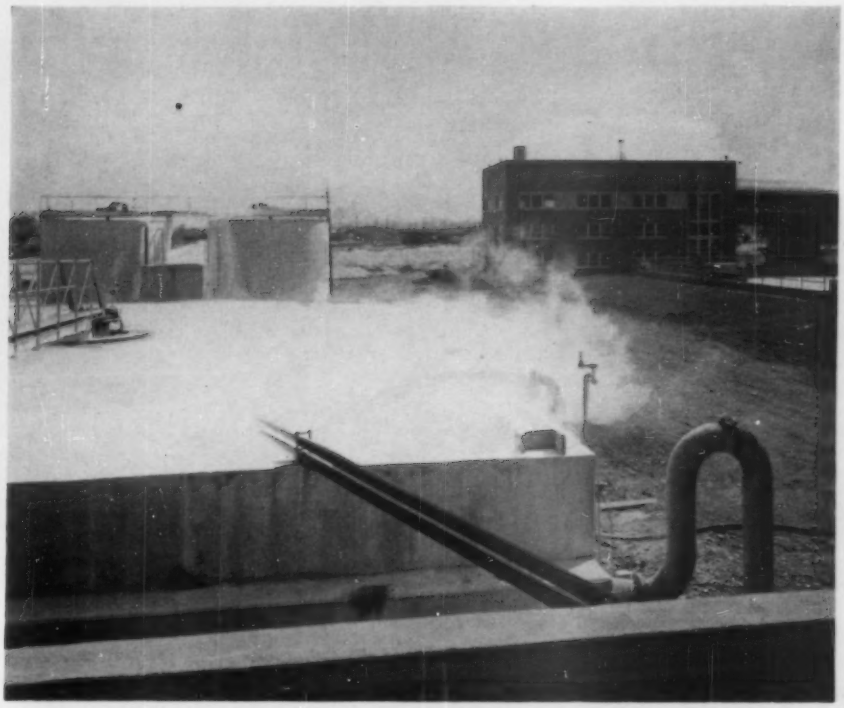
A thorough analysis of the economies of purchasing and operating a hydraulic pipeline dredge showed that production could be increased to a level which would pay off the total expenditure in two years or less. We awarded a contract to the Ellicott Machine Corporation of Baltimore for the design and manufacture of an eight-inch hydraulic pipeline dredge.

The dredge, a wholly self-contained unit of the "Dragon" model class, is especially adapted to handle the weighty calcium carbonate sludge. Powered by a 210-hp diesel engine, it has a digging depth of 17 feet. Its hull is 37 feet long, 14 feet wide, and 4 feet deep. In operation since October 1959, the dredge is producing calcium carbonate at about 100 cubic yards per hour and pumps it, without the aid of booster units, through 5,000 feet of pipeline directly to the plant from the lagoon.

Efficient Operation

With the dredge, we can now operate the kiln at a uniform and efficient rate, thereby reducing costs and increasing production. Under the original system, we anticipated the production of finished lime over a four- to five-year period would return approximately $149,000 to the city. Current estimates, under our new sludge recovery system, increase this figure by $90,000.

The dredge produced a bonus benefit from a savings in highway construction costs of $62,000. Original plans for Ohio's new State Route 4 included the making of a "swamp-type" fill across the lime sludge (which lay directly in its path), displacing only the amount of sludge necessary to provide a stable base. This plan would have removed only one third of the total sludge available, either leaving the remaining sludge or replacing it if removed in order to prevent settlement of the regular highway fill.



Dayton's dredge "Recovery" pumps calcium carbonate sludge from waste lagoons (left) and discharges it into a lime-recalcining basin at the water plant some 5,000 feet away (right).

By operating the dredge 24 hours per day up until the time the highway contract was let, thereby removing all the sludge from the proposed route permitting fill to be made by normal methods, we saved an estimated $87,000 in construction costs. With operating costs established at $25,000, this left a net savings of $62,000, plus the reclamation of all the lime since it was pumped to another part of the gravel pit for future recovery.

All told, the dredge removed some 250,000 cubic yards of lime sludge during this period. The state and federal governments paid for the city's added cost for quick removal of the sludge.

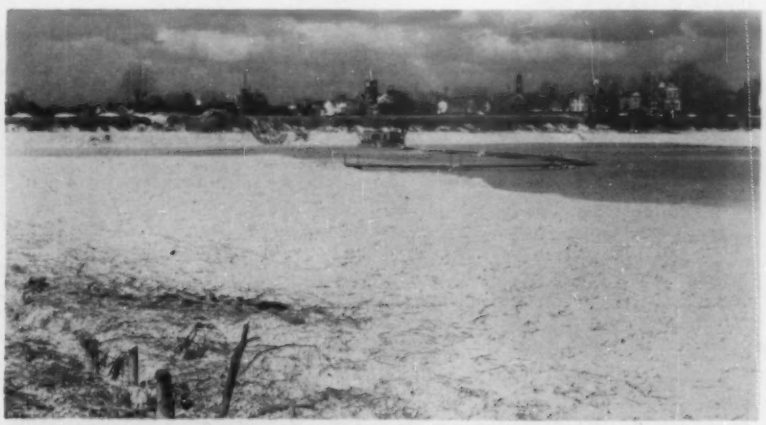
Lagoon Maintenance

Dayton maintains a system of lagoons, fed by the Mad River, to recharge the 47 gravel-packed wells that supply our water. Flooded by diversion of river water during the summer months, the lagoons accumulate deposits of silt which reduce their efficiency. To correct this, we pump them dry each winter for cleaning, an expensive and time-consuming operation even with the mechanical methods employed. As a result, power costs during the winter, when pumping is low, run nearly as high as in the summer, when the pumping is at a peak, since recharging operations maintain the ground-water level close to the surface.

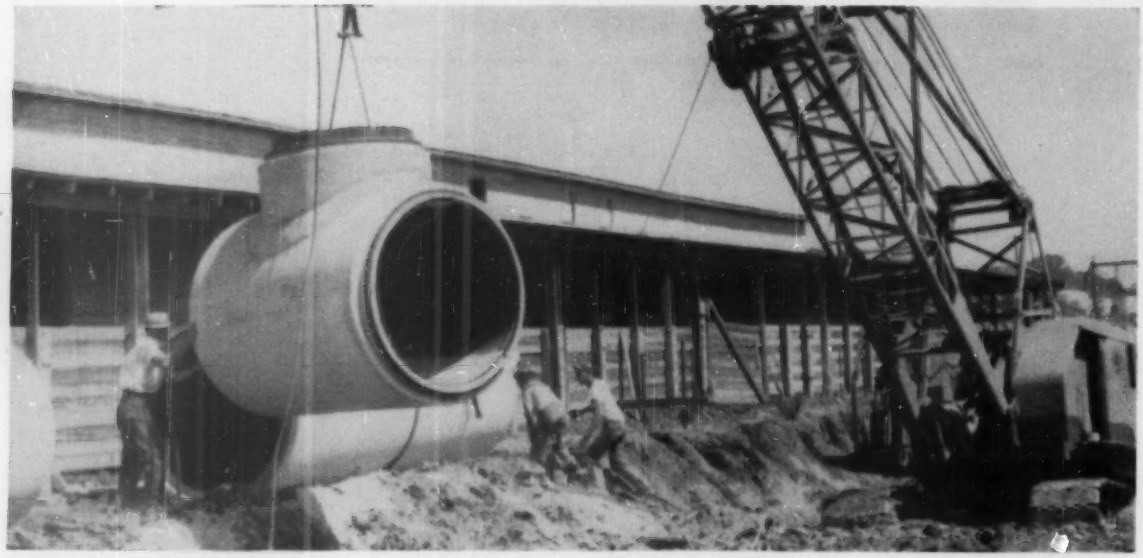
During the cleaning period, the ground-water level drops, requiring pumping against considerably higher heads.

After all lime is removed and processed, we will move the dredge to the well-field area where it will operate continuously to remove accumulated silt from the lagoons without the necessity of draining them.

This will allow us to recharge them on a continuing basis, except for periods of extreme high water in the river when the silt load is excessive. In this way, pumping costs will be reduced and the recharging of wells will be maintained and conducted in the most efficient manner. ◄◄



Sludge removed from the path of the new highway is stored in another part of the pit for future recovery. This view indicates the amount of sludge to be removed.



Manholes were also lined, as shown by this T-shaped section. The liner protrudes above the concrete in the manhole barrel.

A city inspector, using an electrical apparatus, tests for pinholes and breaks in the vinyl liner.

Sioux City Tackles Pollution

. . . with a multi-million-dollar program to construct interceptor sewers, lift stations and a sewage treatment plant

By **R. R. FLEMING**
City Engineer

A hearing conducted by a Federal Board in March 1959, resulted in an unprecedented edict to Sioux City, Iowa, a community of 90,000 persons, to stop discharging untreated wastes into the Missouri River. The signing of the order by Secretary of Health, Education and Welfare Arthur Flemming set up a timetable for the construction of interceptor sewers and a primary sewage treatment plant to be operating early in 1963. The order also listed ten meat-processing firms which contribute waste products directly to the Floyd River within one mile of its junction with the Missouri River.

The consideration of the sewage problem did not begin with the hearing or with the order. It had been under advisement by the city for several years. A preliminary report of sewage treatment facilities, accepted by the City Council in 1957, was prepared by engineering consultants Buell and Winter of Sioux City and the Howard R. Green Company of Cedar Rapids.

From 2,200 separate sewage-flow observations the engineers found that the average daily sewage flow from 27 domestic sewer outlets was 7,768,000 gallons, whereas the average daily flow from 13 industrial (mostly meat processing) outlets was 7,453,000 gallons. Laboratory tests indicated that the industrial outlets contributed 77% of the total daily average of 51,482 pounds of suspended solids and that the strength of the industrial waste was almost four times that of the domestic waste. The total solids represent an equivalent population of 500,000 persons.

The design of the interceptor

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* Since writing this article Mr. Fleming has resigned as City Engineer of Sioux City and joined the staff of THE AMERICAN CITY as Associate Editor. An account of Mr. Fleming's career appears on page 25 of this issue.

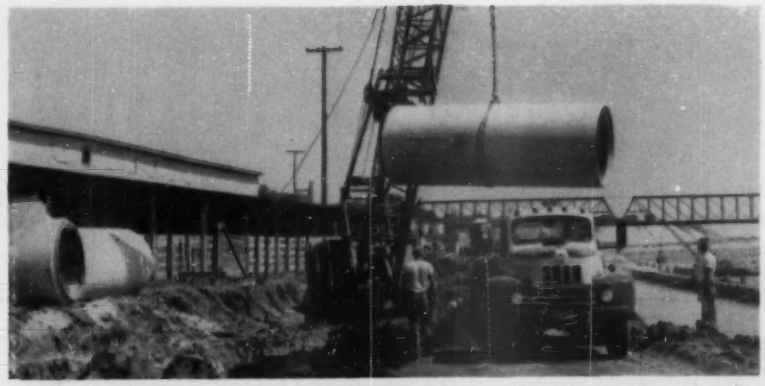
sewers and lift stations was based on a residential area contribution of 2,500 gallons per acre per day with industrial and commercial areas considered as equivalent to 1.6 to ten residential acres. Packing-house acreage equalled 33 times the residential-area flow. The official zone map indicated the type of future development and was used in conjunction with aerial maps to size the interceptors.

Our consultants recommended and the Council chose the digester plan of sewage treatment over the more expensive filter-incinerator and sludge thickener-incinerator plans. Based on an estimated construction cost of almost $2 million, the annual debt service and operation cost of the digester plan amounted to $49,000 less than the vacuum-filter plan and $25,000 less than the sludge-thickener plan.

The consultants also recommended that the meat processors follow certain plant practices which would be cheaper than treatment of these wastes at the municipal plant. These practices included the collection and retention of all blood, grease, paunch manure and fine solids as well as the dry cleaning of stock pens and yards. The processors, consulting engineers and city officials discussed this problem and after thorough consideration of all elements of the plan, the meat processors indicated they would take the necessary steps to salvage the above-listed materials before they reached the sanitary sewers.

Because Sioux City's municipal water has a high sulfate content and because vitrified clay pipe is not made in large sizes, the engineers proposed that the concrete interceptor sewers in excess of 36-inch diameter be protected. The protection finally agreed upon consists of a vinyl-plastic lining above the level of the low flow in the sewer. Since this level varies in different sewers, the vinyl lining changes from three-fourths of the circumference to a full 360 degrees.

The estimated cost of the entire package totals a whopping $7,200,000. Ten miles of interceptor sewers and almost two miles of connecting sewers ranging from eight-inch to 72-inch diameter totalled more than $4 million. Four lift stations added another million and the plant itself comprised the balance. Plans for financing the project originally anticipated that part would be revenue bonds, part general obligation bonds and part contribution from the industries involved. Some complications in connection with a flood-control program may act to change the original formula.



The use of 16-foot lengths reduced the number of joints and consequently the amount of infiltration.

The construction of Interstate Route 29 through Sioux City, scheduled for construction in 1959 and 1960, acted as a catalyst to accelerate the construction of a portion of the interceptor sewer.

Route

This highway and the proposed interceptor to the plant were designed to follow the easterly and northerly banks of the Missouri River. Between the Missouri River, the interstate highway, the interceptor sewer, the railroads and the city proper, the squeeze for space was on. This necessitated constructing the interceptor sewer partly along interstate right-of-way within this section.

Our consultants, working in conjunction with the Iowa Highway Commission and the Bureau of Public Roads, designed two miles of the interceptor system to be built concurrently with Interstate Route 29 along the highway right-of-way. Highway Commission specifications allowed no manholes closer than 30 feet to the slab. Comparatively narrow highway rights-of-way resulted in the sewer being built 20 feet deep within five feet laterally from a meat-processing building of concrete-block construction.

Early in 1959, the city let a contract to build the two-mile stretch of 30-, 36-, 48- and 60-inch-diameter interceptor sewer. Even though the preliminary planning of the work was exceptionally well done, several tough problems arose during construction. Many of these had to do with keeping old private and public sewers in operation while new ones were constructed. In several places storm sewers

The sewer by-pass is several feet below the level of the Missouri River. The men are standing on the concrete cradle.

Construction of two miles of interceptor sewer was coordinated with the building of this portion of Interstate 29 through Sioux City.

crossed the interceptor at right angles. Some of these were below the proposed interceptor and some above. The grading contractor for the Highway Commission and our contractor had to work together to build the lower ones first.

The highway contractor excavated an old riverbank dump several feet below the flow line of the new sewer and backfilled it hydraulically with sand from a dredge for the entire width of the right-of-way and a distance of several hundred feet parallel to the river. Here and in several other places where a hydraulic sand fill was installed, it was constructed to an elevation of one foot above the top of the proposed sewer and stopped. After the sewer contractor had built the sewer, the highway contractor resumed the hydraulic sand fill to final elevation. In one instance the sand fill entered two manholes and filled 400 feet of the 60-inch-diameter pipe to an average depth of four feet. This necessitated removing most of the sand with rubber-tired wheelbarrows to prevent injury to the plastic sewer liner. The contractor washed the remaining sand to a lower manhole and removed it by pumping.

Special Features

The 48- and 60-inch-diameter concrete pipe, cast in 16-foot lengths to reduce the number of joints, was lined with Vinyl T-lock throughout all except the bottom 90 degrees of the arc as laid in place. The 0.06-inch-thick liner, placed in the form when each pipe was made to insure a strong bond, was made with a four-inch overlap at the spigot end. This overlap was then pasted and heat-welded to the liner of the next pipe. To prevent damage to the liner overlap in transporting the pipe to the job, it was folded back inside the pipe and held with a steel band. Precast concrete manholes were also lined with the plastic material. An electrical apparatus checked the liner for pinholes or breaks after the pipe had been laid. Several pinholes found in the first section laid were patched with heat-welded patches. The pinholes were apparently caused during the casting of the pipe when the vibrator struck the reinforcing steel near the ends of the pipe. We informed the manufacturer and the number of pinholes decreased.

At the lower end of this section of the interceptor, from the control manhole to the river under the Interstate Highway, an unstable muck required construction of a concrete cradle on 30-foot wooden piles. The highway slab was to be constructed some 25 feet above the flow line. The muck, therefore, affected the sewer foundation but not the highway construction. In addition, the interceptor sewer at this location was several feet below the level of the Missouri River to which the by-pass outlet was constructed. The contractor used well-points to lay the cradle and sewer on a completely dry foundation.

Before acceptance, we learned that several lengths of the 36-inch, extra strength, vitrified clay pipe had developed cracks. Apparently this was the result of a bulldozer moving or working over the top of the shallow hydraulic sand fill then in place. These cracked pipe lengths were encased in concrete rather than being replaced at the option of the contractor.

Although constructed under difficult circumstances, the sewer easily met a leakage specification of 1,000 gallons per mile, per inch of diameter, per day. The leakage, in fact, was only half of the maximum.

We now have the completed plans and specifications for the balance of the interceptor sewers, lift stations and plant. The City Engineer's office designed almost $3 million worth of the interceptor sewers while our consultants, Buell and Winter and the Howard R. Green Company, designed the plant, lift stations and one section of the interceptor sewers. The City Council and City Manager C. Bodine, Jr., realize that they saved the city some money by allotting to the engineering department the design of interceptor sewers with which they are familiar and by sending out to the consulting engineers the more specialized design of the lift stations and plant.

An $18,000,000 flood-control program in conjunction with the Army Engineers on the five miles of the Floyd River through the city to the Missouri River has complicated the building of the sanitary facilities. This flood program, although long contemplated, seems now to be definite. Some relocation of interceptors as well as two additional lift stations appears to be needed.

Financing

The main impact, however, is in the city's financial ability to do both projects simultaneously. A revision of the original proposal of the consulting engineers to exclude any financing of the sanitary facilities by general obligation bonds may become necessary. If so, sewer rental rates will have to be adjusted above the present 50% of the water bill if buyers are to be found for the bonds.

In addition, revenue bonds in the amount of $500,000 issued for the construction of the two miles of interceptor sewer in 1959, would have to be called before others can be issued. They are not callable until July 1, 1961.

With these factors in mind Sioux City has asked for an extension of the time specified in the federal order by Mr. Fleming. It remains to be seen whether or not such extension will be granted based on the extenuating circumstances. The engineering problems have been solved. The legal and financial questions remain to be worked out before Sioux City can complete its program to eliminate water pollution. ◄◄

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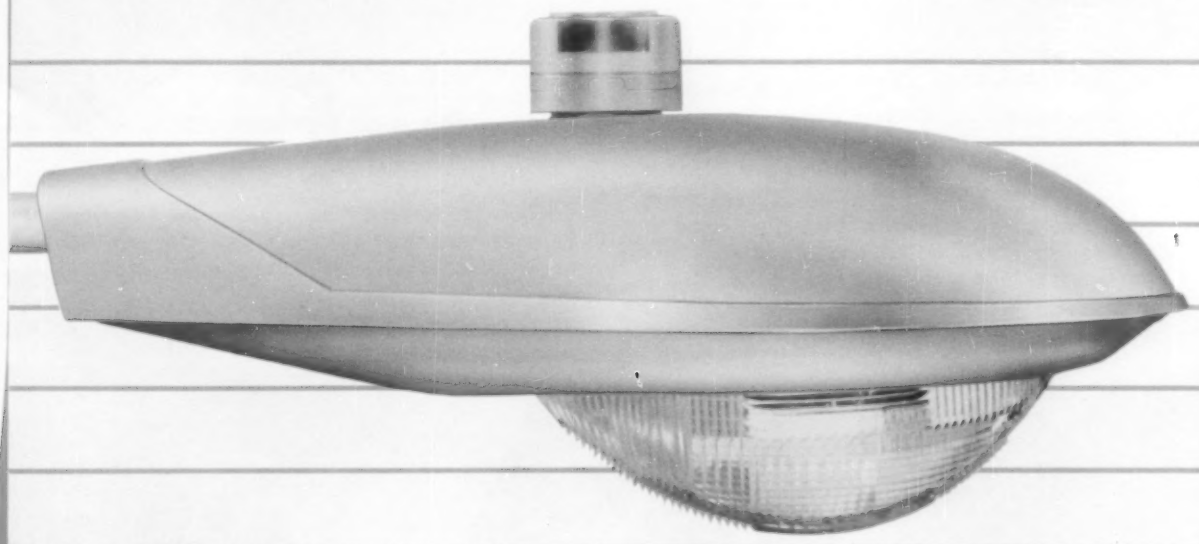

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NEW GENERAL ELECTRIC M-250R LUMINAIRE

How You Plan to Develop the Center of a Suburb

By **CARL HEFFLEY**
Planning Administrator
Darien, Conn.

In the expansion of a retail center of a suburban area like Darien, the key to the entire core area lies in the development of the older, existing development which cannot now provide parking space. This is the area that forms the heart of the future center. The town must provide parking facilities for these areas if it expects progress to be made.

Careful studies demonstrate:

1. that there will be a need, as the town continues to grow, for the business areas to increase in activity to serve that growth,

2. that the central business district has the capacity to accommodate a major part of that growth (along with other business areas), and

3. that the central business district could be a most attractive, convenient and productive center, if it is developed according to the general nature of an overall plan.

Nevertheless, one of the problems is to determine how much and which parts of the overall plan should be undertaken by the town. This concerns not only the Planning and Zoning Commission, but also the fiscal planners of the town, since whatever policy and plan is adopted, it must be correlated to planning and zoning policy.

The problem is not just one of parking space. Traffic is involved also. From solely a financial viewpoint, one area for parking may seem to be cheaper than another; however, the seemingly higher priced property may provide the added value of improved traffic circulation.

As another example, the solution of the problem involves zoning. If new business development is permitted without being required by zoning to provide off-street parking space, it may be inequitable in some instances to require existing business development to maintain parking space which has been provided at private expense; and, since what little off-street parking space now existing has been provided by private business, the placing of business buildings on such parking spaces could result in the loss of more parking spaces (privately owned) than the town would add. Since parking is commercially important, merchants would not be likely to abandon much of it. However, the town would no longer have any assurance that such parking spaces would continue and the residents would be at the mercy of any owner who wishes to make a "fast buck" by selling parking space for a building site, regardless of the long-term interests of the community.

Since the objective is to increase substantially off-street parking space (and to improve traffic circulation in the process), any plan must assure the continuance of existing parking space. This would mean, basically, either:

1. that zoning requirements be kept in force to hold existing parking space, and all new building be required to meet the parking standards (with the town prepared to provide parking space at cost where a developer cannot acquire the parking space himself). The town could, at its own expense, provide the parking area needed to overcome the present deficiency. This procedure involves the least expense to the town, but does require that the town be willing to provide parking space for new development at the expense of that development, or

2. that zoning requirements be eliminated within a business zoning

(Continued on page 129)

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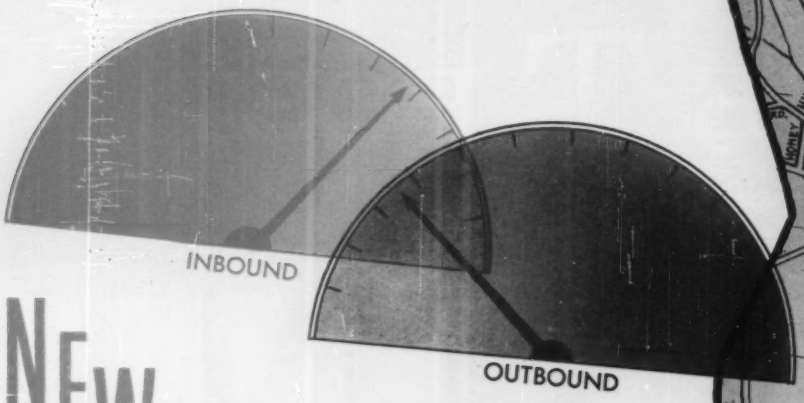

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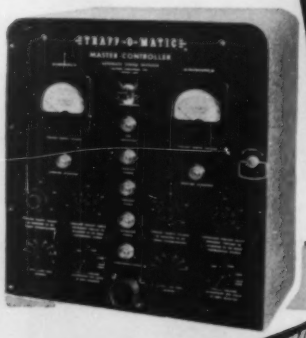

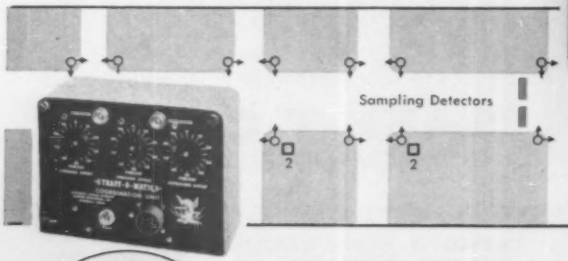

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(Continued from page 126)

district, where the town had determined it would assume responsibility for meeting the entire parking problem in such area and had authorized specific steps to accomplish this. This plan is similar to that followed in Rye, N. Y., over the past twelve years. Before lifting the parking requirements, it would be desirable for the town to secure agreements to purchase existing parking areas if, as, and when the owners decide to discontinue them.

Next Steps

Regardless of which policy is followed, the town will need to undertake the acquisition and development of public parking areas. The initial town parking program likely to be approved at this point would be directed to alleviation of the existing parking shortage and, therefore, would fit into either of the two policies mentioned above.

Following the acquisition of land for parking facilities, zoning changes within the area will have to be initiated to permit the development of new business uses within the center. Revisions to the existing parking standards for the central business district will be necessary to permit the expansion of the existing stores.

The net result of the proposed plan would considerably increase the total land value in the center. Increased tax revenue from higher assessments would ultimately return to the town its initial investment. Aside from the financial benefits derived, the town would enjoy an attractive, functional central business district.

Darien's "Potential Development Plan" outlines these objectives in detail. Copies will be provided to city officials requesting them. ◄◄

The Honolulu Fire Department

By **WM. BLAISDELL**
Fire Chief

Honolulu, the capital of Hawaii, with a population of 310,000, can claim to have the only Fire Department in the world which has had kings as active members, Kamehameha III, who reigned during the eighteen-fifties and Kalakaua, during the eighties.

The first piece of fire-fighting equipment which made its appearance in these Islands was brought to Honolulu in 1846 or 1847 and was a hand engine owned by a Chinese firm, Sam Sing and Company. Water was bailed into it with buckets and this machine could be used for a slight compensation to the owners.

On December 27, 1850, an ordinance issued by Kamehameha III established the Honolulu Fire Department. Soon after the formation of the department, the only hose it had burst. So, Mr. J. H. Wood, then in the boot and shoe trade, made one 200 feet long out of cotton duck; it was then soaked in strong salt brine to shrink it, and this hose did good service for a long time.

The first great fire broke out on July 7, 1855, in the Varieties Theater. It destroyed all buildings in this block including the Police Station.

Up to 1876, the old Kingdom of Hawaii had few disastrous fires in spite of the flammable nature of the buildings usually erected and still existent in many parts of Honolulu. On April 19, 1886, Chinatown was almost wiped out by a fire which burned over 60 acres of buildings with a loss exceeding $1,453,000. The following day, April 20, 1886, the Board of Fire Underwriters was formed and the uniform grading of fire risks inaugurated. May 29, 1886, King Kalakaua signed Honolulu's first building laws.

Purchases

On May 1, 1893, the Honolulu Fire Department purchased its first pair of horses which went to No. 1 Engine. The following July 18 saw the purchase of the second pair of horses for No. 2 Engine. From that time on, horses were purchased until all equipment was horse drawn, new apparatus being secured and new stations erected as the city expanded.

Honolulu's first ladder truck was contracted for on January 1, 1903, from D. D. Hayes, Elmhurst, Calif., and cost $2,750.

The first motor apparatus for Honolulu was put into service April 27, 1912, and consisted of two Seagrave combination chemical engines and hosewagons of the air-cooled type, one of which was assigned to No. 1 Company and the other to

(Continued on page 130)

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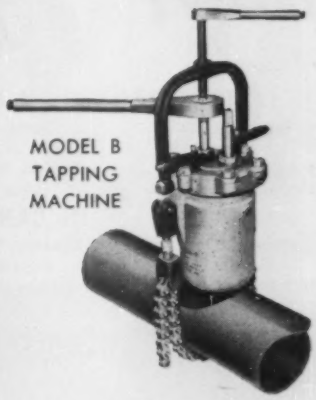
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(Continued from page 129)

No. 3 Company at Makiki Station.

The department continued to progress and expand with the growth of the city, and by 1940 there were ten engine companies and a ladder truck.

Pearl Harbor

Then came Pearl Harbor, Sunday, December 7, 1941. On this never-to-be-forgotten day in our history, two captains and a firefighter were killed and six firefighters were injured while fighting fires caused by enemy action at Hickam Field. All were awarded the Order of the Purple Heart. Incidentally the Honolulu Fire Department is the only fire department in America which fought fires during enemy action in World War II.

Throughout the war in the Pacific, the need for increased fire protection was obvious. Through the office of the Military Governor, the department was rapidly expanded and in 1943 reached the height of its wartime strength, with 35 engine companies, one ladder truck, and a converted fireboat.

With the return of peace, attention was directed toward getting the fire-fighting units out of temporary quarters, and after a re-evaluation of protection requirements, into permanent stations.

In 1946, a mutual aid system was put into effect among the Army, Navy, Air Force and the department, whereby each agreed to aid the other in fighting fires and assist in emergencies anywhere on the Island. A similar agreement with the Coast Guard was effected in 1959.

The old converted fireboat was replaced in 1951 by its present counterpart, the Abner T. Longley, of 89 gross tons, length 87 feet, and capable of discharging 9,000 gallons per minute.

Present Department

The 1960 Fire Department is composed of 22 engine companies, three ladder companies, one fireboat company, and seven rural volunteer companies. This rolling stock is serviced by a modern shop with complete repair facilities. Dwelling and mercantile inspections are performed by company members in cooperation with the Fire Prevention Bureau whose inspectors engage in technical inspections. Financial matters are handled by a Fiscal Division, while the numerous needs of the manpower, which total 415 including three women, are processed by the Personnel Division.

Mobile radio in the Fire Department started May 3, 1932, when receivers were installed in the three chief's automobiles. Those receivers were turned to the wave length of the police transmitter, and alarms were broadcast by the police dispatcher.

The first permit to any municipal fire department to operate its own radio transmitter was cabled by the Federal Communications Commission on September 5, 1942, to the Honolulu Fire Department. Since then radio has been the primary medium of communication for fires and emergencies.

The island of Oahu constitutes the City and County of Honolulu, therefore the Fire Department renders protection to the 604 square miles of city and countryside which comprise the island.

Honolulu itself spreads over 82.2 square miles of densely populated area which is protected by 15 engine companies, three ladder companies and a fireboat company. ◄◄

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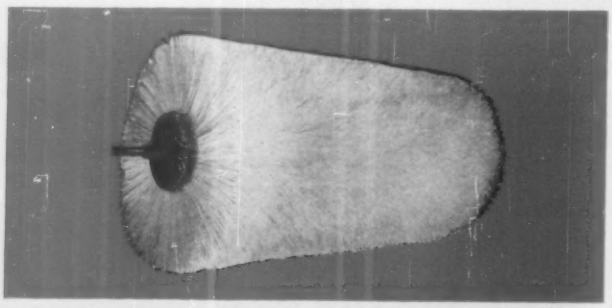

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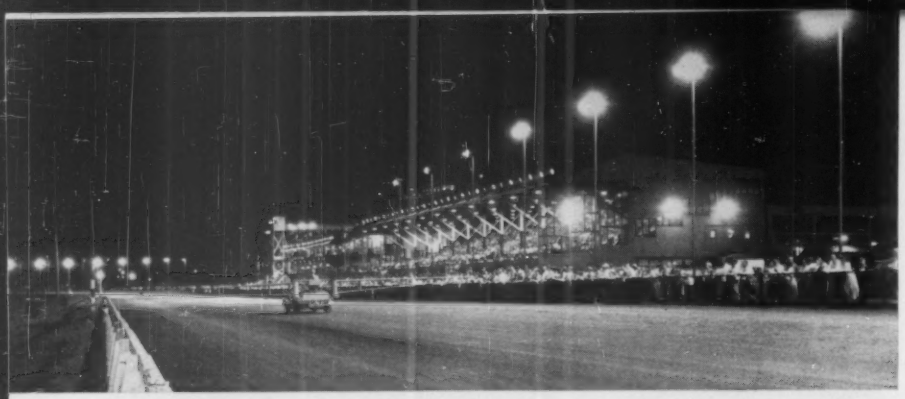
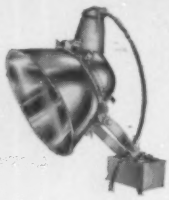
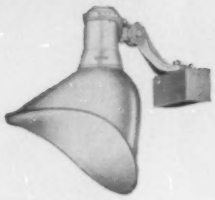




2000 Series Floodlight



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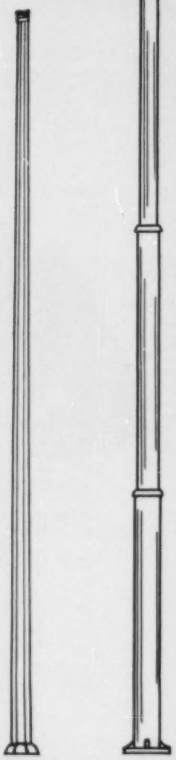
4200 Series Floodlight

199-D Series Hinged Pole



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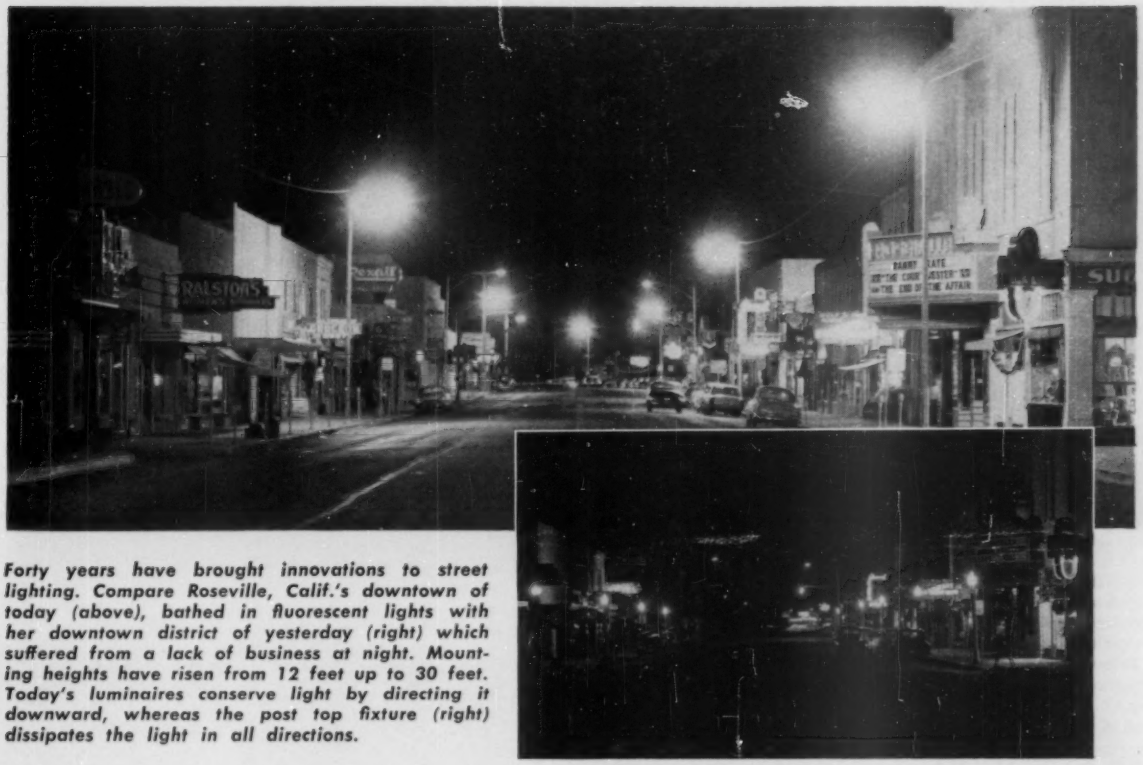

Forty years have brought innovations to street lighting. Compare Roseville, Calif.'s downtown of today (above), bathed in fluorescent lights with her downtown district of yesterday (right) which suffered from a lack of business at night. Mounting heights have risen from 12 feet up to 30 feet. Today's luminaires conserve light by directing it downward, whereas the post top fixture (right) dissipates the light in all directions.

Roseville's Citywide Relighting

By **DAVID C. KOESTER,** City Manager

The City of Roseville, Calif., is engaged in citywide relighting. This program started in 1955 with the installation of high-intensity fluorescent lighting downtown. This project was carried out on an assessment-district basis with the abutting property owners paying for the materials and the city paying for the installation of the fixtures. The equipment consisted of General Electric 406 luminaires on Union Metal poles in this downtown area.

In the following year this fluorescent lighting program was extended to outlying business areas with another assessment district proceeding on the same basis as the first. This second project added another 30 fluorescent luminaires.

Residential Areas

The city then started planning for a residential relighting program. A complete master plan for lighting was set up on a four-year basis. Each year one fourth of the city is to be relighted. This program started in 1959 with the southeast section of the city being completely relighted. In 1960 the second year of this program will be completed with the relighting of the northwest quarter. The remainder will be complete in 1961 and 1962. The city of Roseville owns its electric distribution system so all the street lights are installed and maintained by the city.

Under this program, all streets designated major or arterial streets will be lighted with fluorescent luminaires. Residential areas will be lighted by standard incandescent lamps. Subdivision standards require all new subdivisions to install modern enclosed luminaires on metal poles in locations designated by the city.

The 1959 program consisted of the installation of 115 new luminaires and the 1960 program contemplates the installation of 130 luminaires. In the older residential areas where power lines are on the streets the luminaires will be mounted on existing wooden poles.

Total estimated cost of the residential relighting will be $60,000 for materials. When the program is finished Roseville will have all modern lighting in place of the old open-bulb fixtures that are presently used. All the installations are being installed on multiple circuits with photoelectric eyes to control circuits. ◄◄

192 L-M Mercury Luminaires Turn Night Into Day On "The Strip" At Colorful Las Vegas

L-M Mercury luminaires are spaced at intervals of 100 to 135 feet along both sides of the famous 2½-mile Strip at Nevada's famous resort town. The Clark County Highway commission selected mercury, rather than fluorescent, because its output is not appreciably affected by the high nighttime temperatures. Also the smaller surface of the mercury units offers less resistance to winds than do the larger fluorescents. Luminaires are on 30-foot Union Metal aluminum poles, with 12-foot brackets. Installation was by Bongberg & Wehrheim, Las Vegas electrical contractors, and equipment was purchased from Standard Wholesale Supply Co. of Las Vegas. Southern Nevada Power Company supplies power through its transformers and controls.

While the smooth black-top highway of The Strip provides easy riding, it absorbs lots of light. The excellent Ovalite optical system, utilizing 400 watt, 21,000 lumen lamps, solves this problem, however, and provides high light output per dollar—1.6 footcandles on the street when new, 1.2 footcandles maintained. This superior illumination, increasing safety on this heavily traveled highway, can be seen for miles in the clear Las Vegas air.

County Engineer George Monahan (left, on truck) particularly liked L-M's "Service-safe" feature, which disconnects the lamp socket when assemblies are swung down for service. This is particularly desirable when handling the high voltage inherent in series systems.

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Lighting the Streets of an Exploding City

By **GLENN KIGER**, Supervisor*

The Phoenix, Ariz., street-lighting program continues at an accelerated pace. It contemplates the expenditure of $590,863 for street lighting in the present fiscal year. It is anticipated this will be increased for the year 1960-61 by an additional $100,000.

During the last nine years, street lighting has been installed on all streets which were within the city limits in 1950. Illumination levels recommended by the Illuminating Engineering Society have been met or exceeded on all new installations. However, as the fiscal year 1959-60 draws to a close, it is anticipated that over 70% of the area within the present city limits will not have street lights. Thus it would appear that Phoenix was lighting itself into total darkness, yet there is a simple explanation.

Area Increased

In the nine years, the city of Phoenix has increased in area from 17.9 square miles to 187.4 square miles or over ten times.

The total number of street-lighting units has increased from 1,656 in 1951, to 13,055 in 1960, an increase of almost eight times.

The number of miles of arterial street lighting has increased from 5.5 miles in 1951, to 133.5 miles in 1960, or over 24 times.

Our original goal was to be the best lighted city in the United States. We still aim to be and here are the methods and operating procedures for this program:

1. Installation and maintenance of all street lighting is done by the two utility companies serving the Phoenix and surrounding areas.

2. The city designates which streets are to be lighted each year, type of poles, luminaires, lamps and illumination levels.

The rate which the city pays for each light is on a monthly basis and it varies according to the combination of poles, luminaires and lamp size. A committee consisting of engineers from the utility companies and the city was formed after the first installation of mercury-vapor lighting to set up standards which luminaires must meet in order to be acceptable. All new types and models of luminaires are tested before acceptance on a test plot to determine their ability to meet the city's specifications.

3. The utility companies furnish the entire capital outlay and the city leases the units, installed and burning.

In residential areas, first-grade wooden poles are used with incandescent 6,000-lumen lamps in a closed luminaire. Spacing is maintained at 300 feet where possible on light-traffic streets. Steel standards are used on all arterial streets and highways having curbs and gutters. The poles are staggered and for 1 footcandle are normally spaced 100 to 110 feet. Lamps used are 20,000-lumen mercury vapor lamps mounted 32 feet high.

Priority of street lighting installation is based on studies of traffic volume, accidents on volume per mile, and major crime offenses. Studies are conducted on one-half and one-mile sections and after tabulation, each section of a street receives a priority rating in comparison with another. If a street does not have a priority rating high enough to be considered for the money available in one year it re-

(Continued on page 137)

* Mr. Kiger is the supervisor of the electrical section of the Division of Building Inspections and the city's representative in charge of the street-lighting program.

PHOENIX STREET LIGHTING PROGRAM
(1949-1960)

Fiscal Year (July-June)	Street Lights In Use	Miles of Lighted Arterial Streets	Cost of Street Lighting	Average Population	Per-Capita Cost of Street Lighting
1960-61	16,192	158.0	$727,654	434,277	$1.67
1959-60	13,055	133.5	590,863	371,872	1.59
1958-59	10,435	108.3	490,108	273,053	1.79
1957-58	9,040	90.3	422,702	203,073	2.08
1956-57	7,835	64.5	344,152	185,274	1.86
1955-56	6,252	39.0	270,156	168,412	1.60
1954-55	5,335	30.0	222,940	151,634	1.47
1953-54	4,621	24.0	183,265	137,569	1.33
1952-53	3,232	18.8	126,342	122,892	1.03
1951-52	2,414	14.3	96,324	112,506	0.86
1950-51	1,656	5.5	82,584	107,807	0.77

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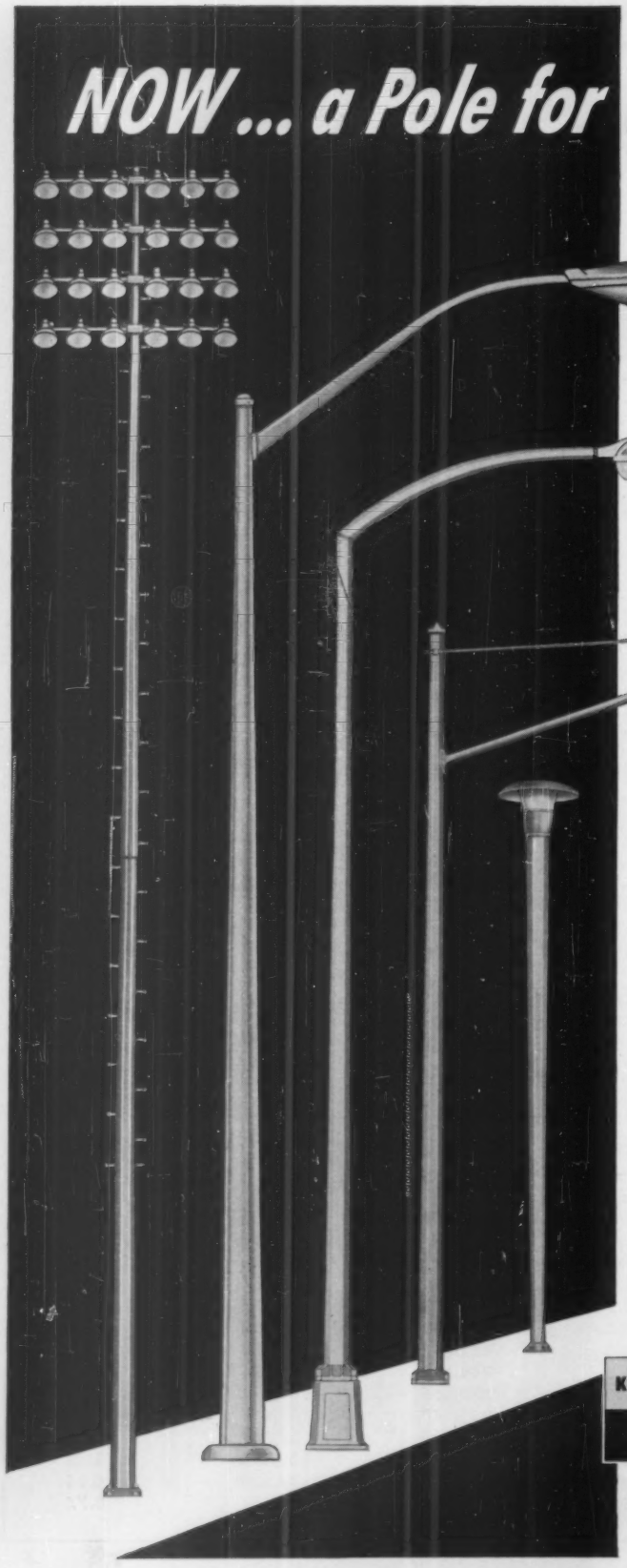

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(Continued from page 135)

ceives consideration in the same manner the following year. We have found that pressure groups cannot argue about preferential treatment when we use this method.

Our single biggest problem in the program has been the use of wooden poles in residential areas. Residents want the ornamental poles and it is our hope that sometime in the near future, an ornamental pole can be developed which will compare favorably in price with a wooden pole installation.

Fluorescent lighting has been considered in Phoenix, but because of the inefficiency of fluorescent lamps at high ambient temperatures, the cost would greatly exceed mercury vapor lighting. Phoenix has high temperatures in the summer months which extend well into the night.

The table on page 135 lists comparable installations from year to year and demonstrates how street lighting has increased in Phoenix in the last nine years. We expect that these trends, with the exception of the per-capita cost will double and most likely triple in the next nine years.

The per-capita cost, of course, varies with the increase in population and the amount spent each year for new lights. In 1949-50 the cost was $1.08 per person. The following year it dropped to $0.77 and in 1956-57 it had climbed to $1.86 per capita. Actual expenditures increased from $344,152 in 1956-57 to $490,108 in 1958-59, but the per-capita cost dropped to $1.79. This variation is due to the large increase in population experienced at the time of the recent annexations. As the population stabilizes and the newly annexed areas are incorporated in the street-lighting program, the per-capita cost increases. ◄◄

Port Huron Lights Streets to Fit Traffic

Our year-old city-wide street-lighting plan for the City of Port Huron, Mich., completed by Detroit Edison Co., shows each block of the city with code lettering relating to present lighting and the proposed levels.

As the first step, the city installed 50 mercury vapor lights in its urban renewal area. They highlight the beautiful architectural scheme of a county-city building, YMCA and Sears store, along with other commercial properties and the county health unit building. These buildings are set in a park-like atmosphere of some 50 acres of which over 70% is landscaped.

Major streets were lighted to a higher intensity than side streets and drives. This was to encourage traffic to use the arteries built to take it. Others, including some streets in the main business district, would then receive less arterial or business traffic.

New fixtures, using Westinghouse fluorescent four-foot tubes on Kerrigan curved davit poles 29 feet high, have been installed on the main business street. Seventy-one of these lights were installed on Military Street and Huron Avenue and the light intensity is three times over the prior fixtures. Several installations in the downtown area using mercury vapor will be added soon.

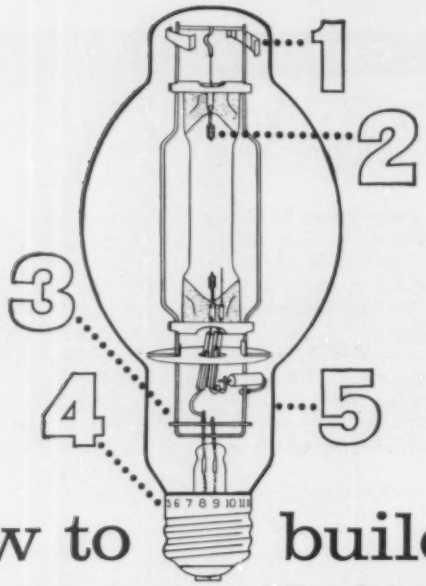
In the residential area, increased lighting has been installed at all intersections and on major streets. All low intensity lights of less than 1,000 lumens have been replaced with 2,000 and 6,000-lumen lamps.

CALVIN M. LAKIN
City Manager

Meridian, Miss., Before and After

In October of 1958, this city replaced 27 blocks of street lighting with fluorescent photoelectric controlled street lighting. This was a contract job with the Mississippi Power Company. The contrast in lighting, before and after replacement can be seen in the pictures.

JOHN W. FORRESTER
City Manager
Meridian, Miss.



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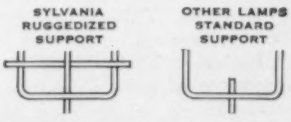

3 Welded twice-over strongly . . . *that's* support! Other lamps balance the arc tube on a single welding. If it breaks, good-bye, lamp! Sylvania Ruggedized Base Support has *two* weldings. Result: *more* strength against shocks, vibrations. Longer life with Sylvania!

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6 Sylvania Light Insurance Policy states: "Provided it has not been physically or electrically misused, any Sylvania Standard Mercury Lamp may be returned to the supplier for full exchange if it fails in less than 100 burning hours; and for *pro-rata* exchange against its published rating if it fails between 100 and 4000 burning hours, provided adequate records are maintained to establish actual burning hours, in which case exchange will apply to the nearest 500 hours."

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Grandview

No Longer a "Tunnel"

One of Traverse City's finest natural assets is magnificent Grand Traverse Bay which extends along the northern edge of the entire city only a city block from the downtown area. Along the shores of the Bay is Grandview Parkway, beautified by trees, shrubs, flowers and wide lawned areas. A scenic drive by day, until about a year ago, it was a tunnel at night.

In 1958 a study was made as to what type of standards and lighting would be best. The decision was to use prestressed Spun-Crete standards as supplied by the American Concrete Corp., Chicago 30, Ill. Since the parkway is a divided drive, it was decided to use two arms on each standard to light both sides of the parkway. The lamp chosen is the non-color-corrected 400-watt mercury power pack made by the General Electric Co.

The City Commission gave its approval to this improvement early in 1959 and work was started immediately, to finish within the resort season. Weather and men cooperating put the finish line in early August.

Public approval was general in the summer, and at Christmas time when the lights were covered with heavy transparent plastic sheets in colors. Approaching the city, with the colored lights and their reflections shimmering in the waters of the Bay, was uplifting. Another successful street lighting system in Traverse City was the 21,000-lumen mercury-vapor Front Street project described in THE AMERICAN CITY for September 1959.

Twin 400-watt mercurys on prestressed concrete poles.

N. G. DAMOOSE
City Manager
Traverse City, Mich.

Mercuries and Incandescents in Kerrville

The Lower Colorado River Authority (a state-owned and operated electric utility) cooperates with the City of Kerrville, Tex., in its street-lighting program. LCRA supplies the initial cost of all the poles, fixtures and wire connected with the street-lighting program. The city pays the cost of current consumed at a rate of 1 cent per kilowatt hour. The City of Kerrville maintains and repairs the system.

All of the areas within the incorporated limits are scheduled for street lights based upon one watt per linear foot in the residential section and more on two intersecting state highways, Texas State Highway 27 and Highway 16, which pass through the city. Mercury lights supplied by the General Electric Company are installed on both of these state highways.

About 75% of the program is complete and the rest will be completed this year. One farm-to-market highway is also being lighted by mercury vapor while another farm-to-market road which traverses a residential section is lighted by incandescent lights supplied by Wheeler-Fullerton Lighting Div., Boston 10. Water Street, on which the greater portion of the business district is located, will likewise have mercury vapor lights.

The LCRA purchases all of the equipment and according to the best of my knowledge, they buy various makes. The cost during the last three years approximated $40,000.

RUDOLPH H. WEISS
City Manager

Dark Tonight But Bright Tomorrow

"Preferred Lighting," says General Electric, "offers simplified selection of some 148 lighting components voted 'most popular' by customer orders." Customers' orders are filled in one to four days from the nearest of 14 stock warehouses strung across the country.

Only items not stocked are steel, aluminum, and concrete poles. But anchor rods and base templates for pouring concrete foundations can be shipped from the factory within three days. This allows time for foundations to be poured and "cured" before poles arrive. Normal shipment for poles is one to four weeks. All recommendations conform to Illuminating Engineering Society standards.

Key to the program is a "Designer's and Buyer's Guide to Preferred Lighting" (GEA-7100) that can be used by customers in obtaining lighting systems. For a copy, write to the News Bureau, General Electric Co., Schenectady, N. Y. ◄◄

"MY MEN DESERVE THE BEST"

". . . Each one puts his life on the line every time he answers an alarm. They *must* take chances, so I *cannot* take chances in selecting their equipment. There's too much at stake!

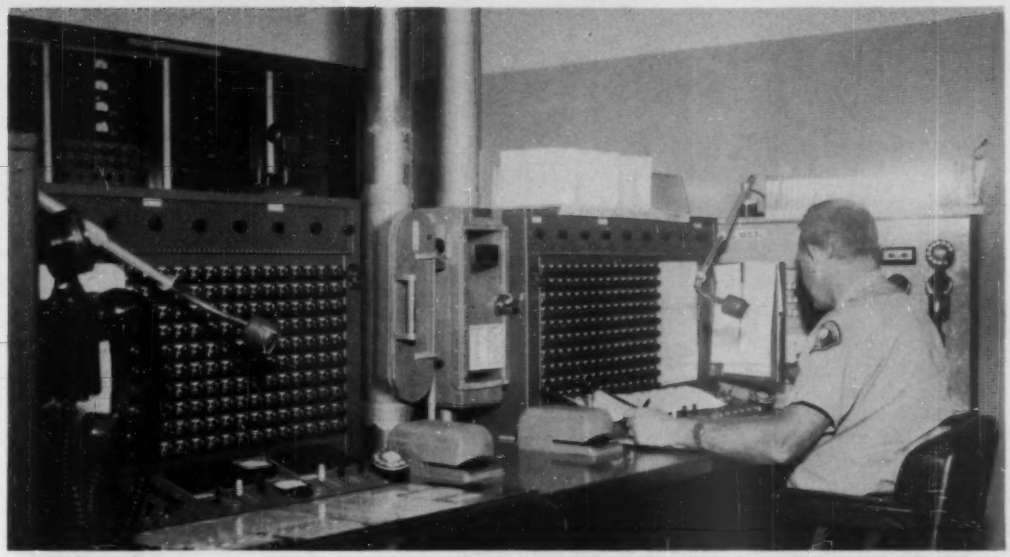
"Take a 2-way radio system, for example. I want the very latest improvements that engineers can come up with—but *not* at the expense of reliability. Our equipment must be field-tested and proved before I stake my men's lives on it. I demand radio that can take it—day in and day out. I don't coddle my men—I *won't* coddle their equipment.

"When our radio needs maintenance—I want it NOW. We can't afford outages. I want a factory-trained man on the spot when we need him—but, we had better not need him too often . . .

"Make? Like most fire departments, we chose the one that measures up to firemen's requirement—Motorola."

MOTOROLA
2-WAY FIRE RADIO

Motorola Communications & Electronics Inc.
4501 Augusta Blvd., Chicago 51, Ill.
A Subsidiary of Motorola Inc.



Ditpatch console with the police radio equipment of the Long Beach, Calif., Police Department showing behind it.

Smoother Two-Way Broadcasting

By **WILLIAM J. MOONEY**, Chief of Police

A Communications Command Center engineered to improve police radio communications has been installed in the new Long Beach, Calif., Public Safety Building by the Westrex Corp., a division of Litton Industries. The problem of simplifying the broadcasting procedure at the Long Beach Police Department was especially acute because of the variety of other agencies and emergency services operating in the fast-growing city, according to Ralph Wight, manager of Westrex's Recording Equipment Department, Hollywood, Calif.

The dispatch console accommodates two operators, as the picture indicates.

The system has facilities for two-way broadcasting on six channels, but at present only two are in use. These are an inter-city channel to provide a UHF link with police departments of neighboring cities, and a main channel for communication with police units and with officers and units of other agencies. These include Life Guards, the U. S. Navy Shore Patrol, the Harbor Department Patrol and the Police Radio Shop.

Plans call for traffic-control cars and motorcycles to be on a separate channel. The department now operates 47 police cars; 50 unmarked detective, vice and juvenile cars; 51 Harley-Davidson motorcycles and 12 three-wheel cycles.

In addition to the radio equipment, an inter-communication system controlled from the console connects the police department with the fire department, ambulance service and the city's traffic signal maintenance shop.

When the full radio capacity is reached, the radio operators will be able to monitor nine channels.

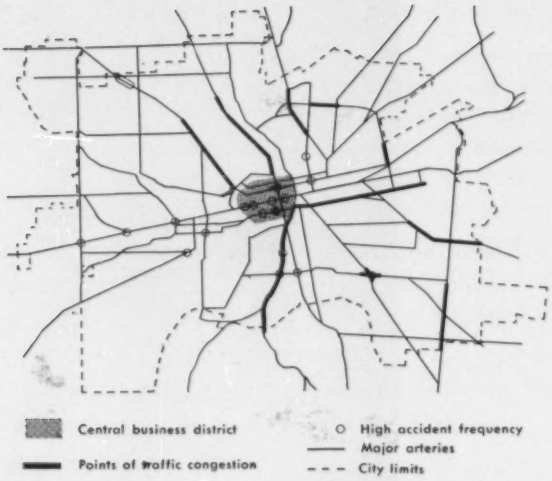
Police report some features of the new system give obvious advantages over its predecessor. A foot control for the radio frees the operator's hands for holding the telephone and writing.

Broadcasts have less interference than previously. Radio equipment is installed in a wall instead of in the broadcast console itself, isolating it from the activity centering around the console. (An entry allows access to the rear of the radio for servicing.) A direct-feeding microphone eliminates background noise in the radio room.

Arrangement of each of the two stations on the console was engineered to speed the operator's use of each item of equipment. These features include telephones and controls, conelrad indicator and controls, records filing compartments, a board that quickly establishes the status of each unit in service, a microwave Secode dial, radio-channel selector switches and a time stamp.

Written messages arrive from throughout the six-story building by a pneumatic tube system within reach of both operators. ◄◄

Dayton's Traffic Gets Attention



Points of traffic congestion and high accident frequencies.

Many of Dayton's public officials and private citizens regard traffic congestion and its related difficulties as the most serious problem in the area. The governments of Montgomery County, Ohio, particularly the city of Dayton, have proposed broad plans of road construction and traffic control to facilitate the movement of automobiles and trucks.

The focal point of most traffic is within the central city and several immediately adjacent suburban areas. An origin and destination study made in 1957 by the state highway department revealed that over 750,000 individual vehicle trips are made daily through the heavily urbanized portion of Montgomery County. Over 575,000 of these trips both originate and terminate within this urbanized sector, while approximately 160,000 have an outside point of origin or termination. Only slightly more than 8,000 are through trips, having both an outside origin and destination.

Congestion caused by this large volume of traffic is greatest within the city of Dayton itself. The diagram shows the 13 areas of heaviest concentration and the intersections that have an abnormally high accident rate. It also reveals that virtually every major artery leading to the central business district in Dayton is plagued by points of congestion or has intersections with high accident rates. Irrespective of these difficulties, approximately 105,000 vehicle trips start or end daily in the central business district and 9,000 additional trips are made entirely within it.

If poor traffic conditions cause unreasonable inconvenience and frustration, travel into the downtown section—whether by private automobile or public transit—will be discouraged. Results of the survey of citizen opinion revealed that when asked what changes they would like to see made in the city of Dayton, almost 40% of those interviewed indicated "better traffic conditions."

Parking

The traffic problem is not confined to vehicular movement. Finding a place to park can be more frustrating than driving. While parking facilities in the 51 square blocks which comprise the central business district of Dayton are adequate, a shortage of parking space exists in the core area, which consists of 15½ blocks. In 1952, the city plan board reported that 1,200 additional spaces were required to meet public needs in the central business district. More than 2,700 spaces were added during the following five years but relatively few were located in the core area where about 1,000 Park-O-Meters are operating.

Mass Transit

The inconveniences of traffic congestion are not confined to individuals who drive private vehicles. Public transportation is relatively slow in comparison to the private automobile. In the central business district, private vehicles move at an average rate of 12 to 14 miles per hour while buses average only seven miles per hour. In the outlying areas, private automobiles average 20 to 25 miles per hour against eleven miles per hour for transit vehicles. This variation in speed has contributed to the steady decrease in passenger volume on mass transit facilities.

Despite the large increase in the area's population, the number of passengers using public transportation in metropolitan Dayton has declined nearly 50% since 1947. From an engineering standpoint, the solution to the traffic problem is to induce more people to use mass transit. But the favorite mode of travel is the private automobile. Unlike the figures for public transportation, passenger car registration in Montgomery County increased from 127,490 in 1950 to 188,500 in 1957. Not only has the number of automobiles increased but also the number of trips per day for each car has multiplied.

Four major programs to ease the traffic problem either have been instituted or submitted to the city commission; expressway construction, a one-way street system in downtown Dayton, traffic signal modernization and construction of off-street parking garages.

Dayton's proposed $86.4 million expressway pro-

(Continued on page 145)

This article is taken from the 300-page "Metropolitan Challenge," a report on metropolitan Dayton, by Metropolitan Community Studies, Inc., 410 West First St., Dayton 2, Ohio; John C. Bollens is the executive director of the organization.

ON - STREET

OR

OFF-STREET

PARK-O-METER PRODUCES PROFIT

Whether your city has on-street or off-street parking problems, Park-O-Meter can be utilized to produce profits.

Park-O-Meters are automatic and accurate. They can be adjusted *on the site* for time, rate and coin changes, thereby eliminating costly shop maintenance and overhead.

Park-O-Meter parts are precisely engineered and skillfully built of finest quality brass, copper and stainless steel. They pay for themselves quickly and continuously. Let a Park-O-Meter parking expert show you how you can have a profitable parking meter system.

CLIP THIS COUPON

_____I would like to have more information.

_____Please have a Park-O-Meter representative call.

Name_____Title_____

City _____

State _____

P O M

MAGEE-HALE PARK-O-METER COMPANY

3909 Willow Springs Road • Oklahoma City, Oklahoma

RAMBLER For '61

Three New Series of Ramblers to Help Lower the Rising Cost of City Government

Rambler for 1961 offers three series of compact fleet cars—the 100″ American, 108″ Classic and the 117″ Ambassador with a host of new man-saving, money-saving features including . . .

- New die-cast aluminum engine that assures excellent quality, economy and performance for the Classic Custom 6.
- New Ceramic-Armored muffler and tail-pipe—warranted as long as they're in the service of the original municipal agency.
- New molded fiber-glass ceiling that cuts road noise 30% . . . provides insulation against summer heat, winter cold in Classic and Ambassador models.

You *save* with Rambler—America's Economy King!

Rambler American 2-Door Sedan

For 1961 the Rambler American is more compact *outside*, yet has room for six average adults inside. The American Custom swept to first place over all other compacts in the 1960 Mobilgas Economy Run! Also available in 4-door sedan, 2-door business coupe, 2- and 4-door station wagons.

Rambler Classic 6 and V-8 Super Station Wagon

(Also Available: 3-seat, 5-door models)

Here's 80 cubic feet of cargo room for all municipal needs. The Rambler Classic 6 engine block is aluminum die-cast to near flawless perfection not possible before. Standard on Custom models, optional extra on others.

The Rambler Classic and Ambassador 5-door wagons are ideal as combination police or fire department vehicles and emergency ambulances.

- *Because of greatly expanded parts and service facilities, Rambler can assure prompt assistance to municipal maintenance personnel.*
- *No obligation—demonstrators available for on-the-job test from your Rambler dealer, or write direct to American Motors fleet department.*

Classic Deluxe 4-Door Sedan

Fast becoming America's most popular fleet sedan, the Rambler Classic is America's only proved fleet compact car!

SEE YOUR RAMBLER DEALER

or write or phone

Fleet Sales Department—Dept. A-11

AMERICAN MOTORS CORPORATION

14250 Plymouth Road • Detroit 32, Michigan

(Continued from page 142)

gram is closely linked to the development of U. S. Highways 25, 35, and 40, and state route 4. The program received a vote of confidence in the approval of a $10 million bond issue in the fall of 1958. There is no assurance, however, as to when this program will be carried out.

Establishment of a one-way street system has been authorized by the city commission but execution of the project may be delayed by legal action. Modernization of traffic-control signals on certain major arteries through the use of electronic computing devices has similarly received approval. This program, however, may also be held up if the one-way street plan is delayed since installation of the new system must be correlated with the street pattern in downtown Dayton. Various proposals for the construction of off-street parking garages are still in early stages of development. Several of them provide for city ownership and private operation.

From the standpoint of its traffic problem, metropolitan Dayton is more fortunate than many comparable areas. Traffic congestion is confined largely to the central city, wide streets downtown help, and the extensive programs now being undertaken by the city should improve traffic conditions. ◄◄

How Fort Pierce Readies for 1985 Traffic

The Police Department of the City of Fort Pierce, Fla., has studied all major and minor streets as a first step in a long-range project whereby all present improvements and new construction, markings, one-way streets and signal systems will tie into the future planning and the expansion of our city. The purpose is to determine the need twenty to twenty-five years in the future and to set up an orderly program of expansion of our traffic facilities, construction of streets, signal systems, and flow patterns in accordance with long-range objectives.

Traffic movements in Fort Pierce are radial from the central business district to residential neighborhoods, crosstown between various residential neighborhoods, and through highway traffic. But we foresee a fourth type of traffic—circumferential, to keep from our central business district much of the through traffic. Our streets frequently serve more than one of the above uses.

The majority of the radial streets include the federal and state highway system within the city. Crosstown routes interconnect secondary focal points. The future circumferential routes will provide distribution between radials serving the different parts of the city and will by-pass the areas of confusion.

Our existing street patterns are basically North-South or East-West with a few diagonals. Our objective is to modify our existing street system for better use by channelization and restricted parking.

One-way streets, channelization and signalization have already made a major change in the traffic flow in the business district. Our next step will be for modernization of our traffic signal system. The traffic-control devices will be interconnecting and synchronized. Each installation or correction that we are making will tie into the overall future plan of Fort Pierce. We are careful to purchase equipment that will not be obsolete before it is installed.

Our studies use traffic counts, aerial photographs, condition and collision diagrams, five years' experience of traffic accidents, traffic cordon counts, counts of flow movements of all major and minor streets, turning counts at intersections, trend in population, vehicles owned and gasoline consumption. We are trying to correlate all of these data into our analysis, taking into account future growth.

J. Floyd Glisson
City Manager

Doing His Worst

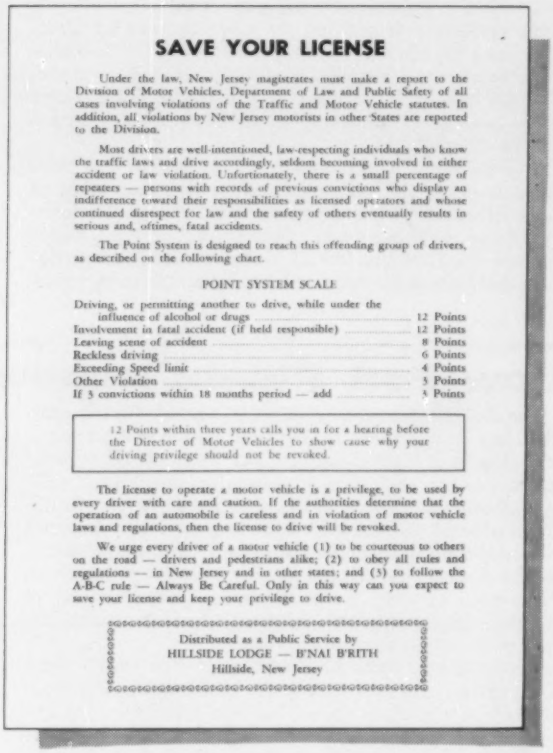
Louis P. Farina, Chicago's superintendent of parking, hits the V.I.P. Duncan parking meter with a three-pound hammer to test vandal resistance.

The City of Chicago cooperated with Duncan in developing the new meter by test-operating an earlier version. The city now has installed 1,500 of the new V.I.P.'s and plans to replace older meters at the rate of more than 6,000 annually. There are 30,000 meters in on-street and parking-lot locations in Chicago.

Save Your License

The notice shown here was printed and distributed by the Hillside Lodge B'nai Brith of Hillside, N. J., as a public service. The organization distributed about 10,000 copies through supermarkets, stores, and municipal offices. I have already found that it has made a deep impression on motorists. Perhaps the same thing in other cities could come up with the same good results.

HENRY GOLDHOR, *Magistrate*
Municipal Court
Hillside, N. J.



SAVE YOUR LICENSE

Under the law, New Jersey magistrates must make a report to the Division of Motor Vehicles, Department of Law and Public Safety of all cases involving violations of the Traffic and Motor Vehicle statutes. In addition, all violations by New Jersey motorists in other States are reported to the Division.

Most drivers are well-intentioned, law-respecting individuals who know the traffic laws and drive accordingly, seldom becoming involved in either accident or law violation. Unfortunately, there is a small percentage of repeaters — persons with records of previous convictions who display an indifference toward their responsibilities as licensed operators and whose continued disrespect for law and the safety of others eventually results in serious and, oftimes, fatal accidents.

The Point System is designed to reach this offending group of drivers, as described on the following chart.

POINT SYSTEM SCALE

Driving, or permitting another to drive, while under the influence of alcohol or drugs	12 Points
Involvement in fatal accident (if held responsible)	12 Points
Leaving scene of accident	8 Points
Reckless driving	6 Points
Exceeding Speed limit	4 Points
Other Violation	3 Points
If 3 convictions within 18 months period — add	3 Points

12 Points within three years calls you in for a hearing before the Director of Motor Vehicles to show cause why your driving privilege should not be revoked.

The license to operate a motor vehicle is a privilege, to be used by every driver with care and caution. If the authorities determine that the operation of an automobile is careless and in violation of motor vehicle laws and regulations, then the license to drive will be revoked.

We urge every driver of a motor vehicle (1) to be courteous to others on the road — drivers and pedestrians alike; (2) to obey all rules and regulations — in New Jersey and in other states; and (3) to follow the A-B-C rule — Always Be Careful. Only in this way can you expect to save your license and keep your privilege to drive.

Distributed as a Public Service by
HILLSIDE LODGE — B'NAI B'RITH
Hillside, New Jersey

Zoning Requirements for Offstreet Parking

Most land uses generate vehicular traffic and the need for off-street parking that goes with this traffic. Therefore it is within the purview of zoning ordinances to include certain requirements for parking. We may have intensive uses of land. The supermarket is an example of intensive use. At peak periods there may be a very high ratio of customers in relation to the square footage of floor area of the supermarket. On the other hand, the furniture store needs a large amount of floor area for merchandise display and has relatively few customers and clerks within the establishment. Thus the furniture store parking demand is not nearly so great as that of the supermarket. Each type of land use seems to create different parking demands, and each seems to generate different traffic patterns. The type of merchandise in the store usually provides a clue as to how much parking will be needed. The traffic engineer becomes involved in regard to traffic patterns generated. He is concerned with layout of the parking areas and the relation of parking ingress and egress to adjacent streets.

Commercial uses, of course, are not the only ones creating off-street parking demands. Residential uses —particularly apartments—must continue to meet growing parking needs. In regard to industry, one approach is based on the number of workers employed on the largest shift. Something should also be said about interior landscaping requirements in parking areas. The broad expanses of asphalt pavement should be relieved by planting beds with trees, shrubs, and other plant materials. The Los Angeles County zoning ordinance requires such landscape treatment where there are more than twenty spaces in the parking lot.

JOHN P. COMMONS, *Chief*
Advance Planning Division
Los Angeles County
Regional Planning Commission

Remarks made at a panel discussion at Southern California Planning Congress dinner meeting held in Santa Monica, Calif.

One-Man Traffic Cars

On July 1, 1959, the traffic patrol units on duty in the City of Pico Rivera, Calif., switched from two-man cars to one-man cars.

Experience with one-man cars convinced the city that the decision had been fully justified for it provided increased service and additional revenue.

A 77% increase in miles traveled by traffic units for a total of 30,000 miles, indicates that streets were patrolled more frequently. Citations increased by 19% for an estimated revenue increase of $9,300. ◄◄

EXTENSIVE TESTING IN ACTUAL FLEET USE

PROVES '61 LARK PERFORMABILITY

THIS IS WHAT FLEET DRIVERS SAY–

"Immediate response to acceleration"
"Good hill climbing"
"Very little steering effort on twisting mountain roads"
"Good solid feeling... no squeaks or rattles"
"Excellent maneuverability and directional stability"
"Easy to get in and out of"
"Good headroom"
"Parks easily"
"Good in traffic, and stop-and-start driving"

MILEAGE 22% BETTER—OIL CONSUMPTION ZERO

Certified by United States Testing Company

These are actual comments from men who drove the '61 Lark in four large blue-chip fleets. They averaged 304 miles per man, on their regular routes.

Their reports cover the new 112 HP Skybolt Six engine (20-25% better mileage), new suspension and steering (30% easier), new bonded brakes (up to 100% longer wear). But there are over 50 improvements in all contributing to '61 Lark Performability. *You have to drive it to believe it!* Phone your Lark dealer right now for a test on the road. And for full Fleet information, send this coupon to Studebaker!

THE '61 LARK BY STUDEBAKER

PS: The best trucks for your business are built by Studebaker—½ to 2 Tons heavy duty!

GET THE FULL STORY ON FLEET SAVINGS!

Fleet Sales Division, Studebaker-Packard Corporation, South Bend 27, Ind.

☐ Send us informative literature only
☐ Have a factory representative call me for an appointment

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PLEASE PRINT

TITLE _____

COMPANY _____

ADDRESS _____

AC11-60-F3

Trailer Parks Can Be Good Neighbors

By L. L. LITTLE
Director of Planning
Wichita-Sedgwick County
Metropolitan Area
Planning Department
Wichita, Kan.

Frankly, we were just a little surprised at how constructive trailer parks can be in an urban area such as the Wichita-Sedgwick County area. We had been concerned about them, of course, and consequently the Commission decided to make an objective study to get exact factual information.

We concerned ourself with organized trailer parks and made no attempt to examine the single, scattered trailers on private lots. Our findings provide a basis upon which the Planning Commission can make recommendations to the City Commission and the County Commission. It also answers a lot of questions in the minds of individuals.

We made a questionnaire survey of 1,500 trailers on these organized lots and received an encouragingly high 22% return. From these we learned that:

- **99% of the trailers are occupied on a year-round basis.**
- **96% of the occupants own their own trailers.**
- **79% prefer living in trailers than in other housing.**
- **63% have lived in the same trailer park less than two years.**
- **Trailer occupants earn a higher income than the average of families in the Metropolitan Area.**
- **The average trailer family is 2.8 persons.**
- **Trailer park residents do not exert any greater demand on municipal services and facilities than do residents of other types of dwelling units.**

Currently, 44% of these trailer parks are in areas zoned for commercial purposes and 14% are in industrial zoning districts. This residential use is non-conforming, and is contrary to good planning.

We need, therefore, a zoning classification that will permit trailer parks. Such a zoning classification should govern the number of families per acre, sanitation, park layout, and similar essential facilities. This would provide for the proper development of trailer parks and aid in the development of the overall community.

Two possibilities exist that can be followed. First, we can create special trailer zones; second, we can permit trailer parks in multi-family, suburban and rural residential districts as a conditional use.

Continuing the present policy however, condones a non-conforming use. It reduces the effectiveness of standards and specifications in any revised trailer code, and generally is opposed to good community planning. ◄◄

WHEN PEOPLE GET MAD AT THE WEATHER

it's good to have professional help to restore public good will

Many communities now employ The Davey Tree Expert Company. So can you. You will get the finest mechanical equipment, always kept in tip-top condition without your bothering with maintenance.

Skilled, courteous manpower, backed by a nationally respected name: Davey offers your community the complete line of tree care services plus expert, experienced control of weeds and brush where needed.

You will also appreciate dealing with the efficiency of the world's largest and oldest tree saving organization—time and temper saving for you.

DAVEY TREE EXPERT CO.

DAVEY TREE EXPERT CO.
Kent 16, Ohio
MARTIN L. DAVEY, JR.
President
THE OLDEST AND LARGEST TREE SAVING SERVICE IN THE WORLD

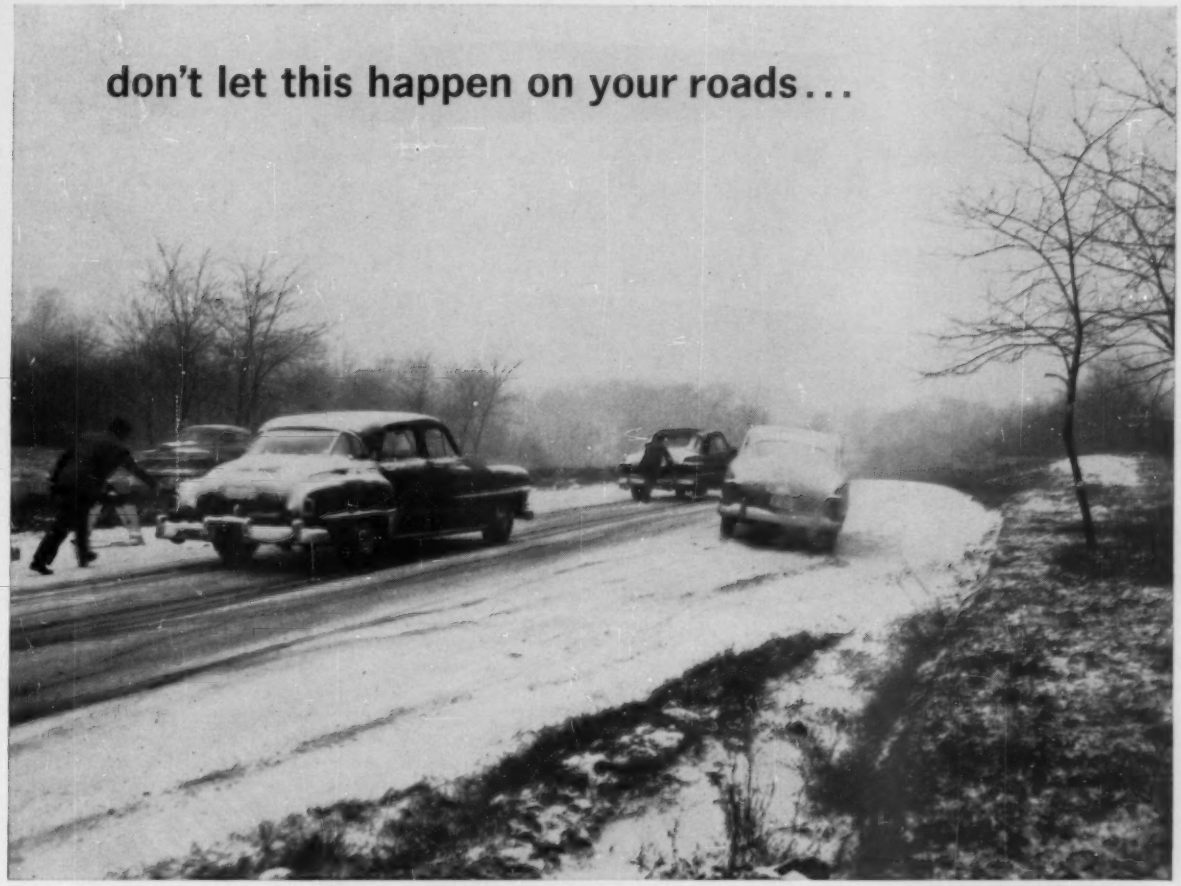


Photo courtesy Bureau of Public Roads, Dept. of Commerce

Icy roads like the one above are quickly changed to safe, bare pavements with Columbia Calcium Chloride–rock salt mixtures.

CLEAR ICY PAVEMENTS FAST

with Columbia Calcium Chloride–rock salt mixtures

No other ice and snow control material offers these Columbia Calcium Chloride–rock salt mixture advantages:

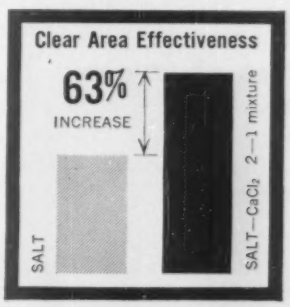
BARE PAVEMENT FASTER: Test results (right) prove the ice melting action of Columbia Calcium Chloride–rock salt mixtures. And, mixtures give you a uniformly clear pavement, free from treacherous patches of ice.

ALL-TEMPERATURE EFFECTIVENESS: Columbia Calcium Chloride–rock salt mixtures assure quick melt at *all* temperatures—from freezing to sub-zero.

SAVE TIME, MONEY: Columbia Calcium Chloride and rock salt mix easily, can be stored indefinitely, ready for instant use with minimum shelter required. Bulk purchase and storage help stretch maintenance budgets.

It isn't too late to order your Columbia Calcium Chloride and rock salt. Get your order in now to keep your roads safe this winter.

For more information write to our District Sales Office nearest you or to our Pittsburgh Address.



Clear pavement area two hours after application of calcium chloride–rock salt mixtures is 63% greater than salt alone in 25-30° temperature range.
(Based on field studies in Michigan sponsored by the Calcium Chloride Institute)

You'll like doing business with Columbia-Southern

columbia | southern chemicals

COLUMBIA-SOUTHERN CHEMICAL CORPORATION • A Subsidiary of Pittsburgh Plate Glass Co., One Gateway Center, Pittsburgh 22, Pa.
DISTRICT OFFICES: Cincinnati • Charlotte • Chicago • Cleveland Boston • New York • St. Louis • Minneapolis • New Orleans • Dallas Houston • Pittsburgh • Philadelphia • San Francisco
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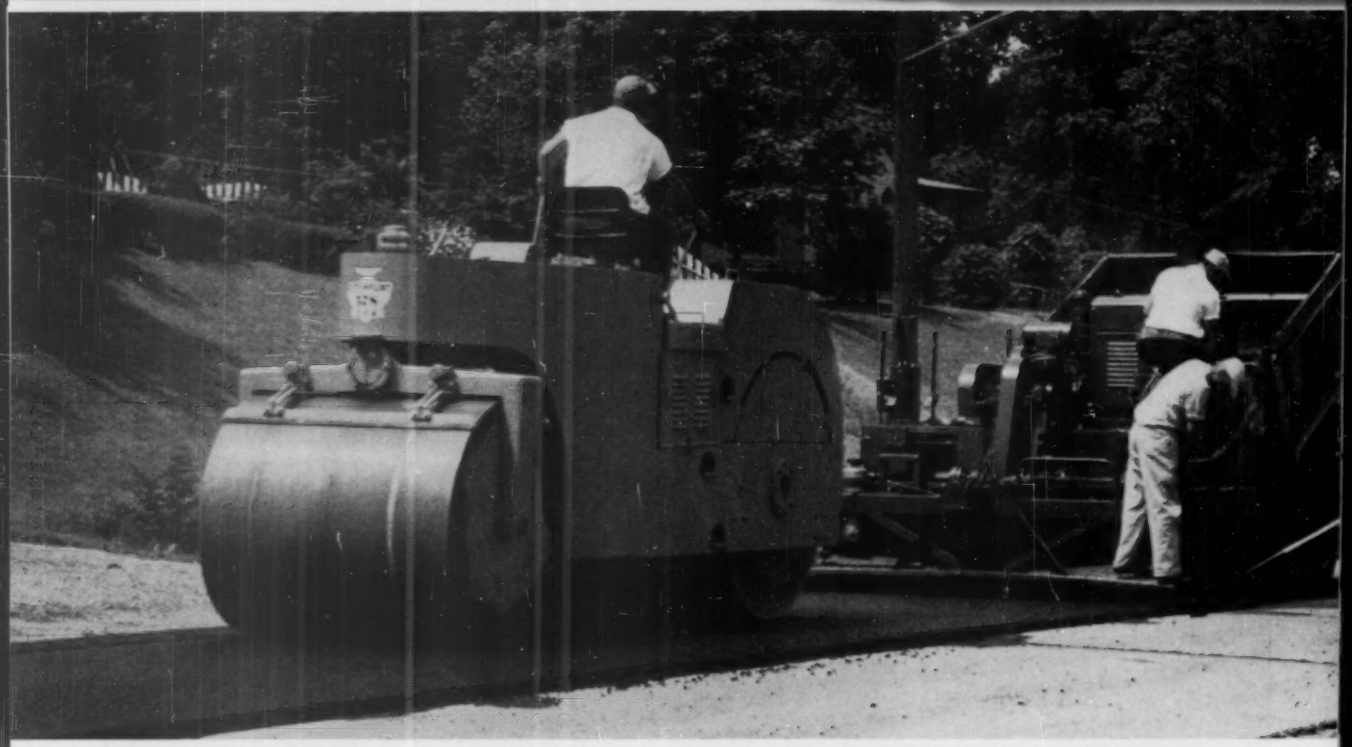


CITY OF FLINT, MICHIGAN, has a busy schedule for this Huber-Warco 8-12 ton tandem roller. It is used on new street construction, resurfacing old pavements and some patch work. The roller is shown compacting a 1½ inch binder course on Atherton Road, which was recently resurfaced.

HUBER W WARCO

HUBER-WARCO *tandem rollers*

3-5 ton 4-6 ton retractable 5-8 ton 8-10 ton 8-12 ton 10-14 ton

DRIVE FEATURES — Water-cooled torque converter cushions against shock. Tailshaft governor maintains desired speed regardless of grade for easy, accurate control. Two-speed transmission* prevents loss of efficiency in tailshaft governor or hydraulic steering at all rolling speeds.

KING OF KINGPINS — Complete freedom from kingpin and swivel pin looseness. Tapered roller bearings permit "like-new" adjustment. No road scuff in reversing. Kingpin and housing easily removable.

CONTROL FEATURES — Variable hydraulic control adjusts to steering "feel" best for operator. Dual controls. Parking brake system completely independent.

PERFORMANCE PLUS — Work within less than 2 inches of buildings. Unsurpassed visibility. Final drive mounted in the frame, not on it, for longer shaft, gear and bearing life.

*Except for 3-5 ton and 4-6 ton models.

A trusted product name backed by respected distributor names from coast to coast

MOTOR GRADERS

Standard transmission models from 83 to 160 H.P. Torque converter and power shift transmission models from 102 to 195 H.P.

TANDEM ROLLERS

3-5 Ton • 4-6 Ton Retractable • 5-8 Ton • 8-10 Ton • 8-12 Ton • 10-14 Ton

3-WHEEL ROLLERS

10-Ton • 12-Ton • 14-Ton Standard Weight 10-12 Ton • 12-14 Ton Variable Weight

MAINTAINER

M-52 — 45½ H.P. Attachments are Lift-Loader, Broom, Bulldozer, Patch Roller, Scarifier, Snow Plow, Berm Leveler

HUBER-WARCO COMPANY Marion, Ohio, U.S.A.

22 Cities Vie for All-America Title

Twenty-two communities across the nation have been picked as finalists in this year's competition for the coveted All-America Cities Awards. The awards competition, now in its 12th year, is co-sponsored annually by the National Municipal League and *Look* Magazine.

The finalists are:

Tucson, Arizona
Arkansas City, Arkansas
Long Beach, California
Marin County, California
San Jose, California
St. Petersburg Beach, Florida
Decatur, Illinois
Skokie, Illinois
Abilene, Kansas
Baltimore, Maryland
Grand Rapids, Michigan
Traverse City, Michigan
Bloomington, Minnesota
Clayton, Missouri
Las Vegas, New Mexico
Mooresville, North Carolina
Salem, Oregon
East Providence, Rhode Island
Galveston, Texas
Radford, Virginia
Worcester, Massachusetts
Richland, Washington

The contestants, ranging in size from big-city Baltimore to small-town Arkansas City with less than 1,000 population, will be judged according to the outstanding action taken by their citizens to solve major community problems. Eleven winners will be selected out of the 22 finalists, their names to be announced early next year.

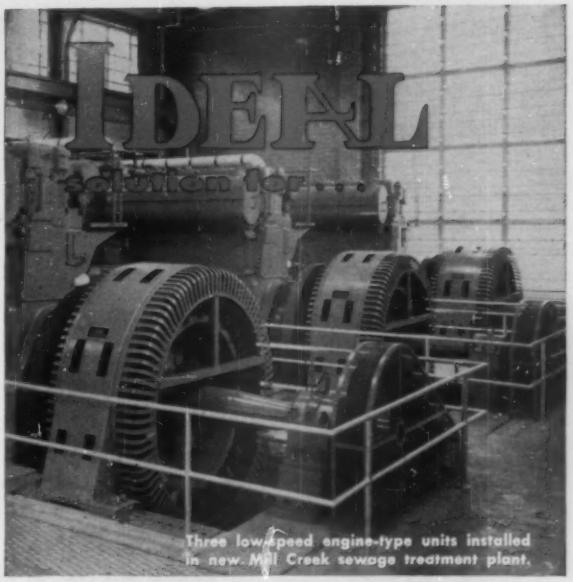
The National Municipal League, co-sponsor of the awards competition, is a 64-year-old nonpartisan citizens' organization founded by Theodore Roosevelt, Louis D. Brandeis and others to raise the standards of local government. ◄◄

Increase the Usefulness Of Your Pipe Detector

The user of any pipe detector, regardless of make, will find a recently printed booklet on the subject of pipe location most helpful. It will be of special interest to those users in outlying areas where representatives are not available to demonstrate the instruments.

The handy "how to do it" guide, published by Computer-Measurements Company, 12970 Bradley Avenue, Sylmar, Calif., briefly describes the pipe-detector instrument and its principle of operation and then describes the solution to 11 basic problems. These include locating unknown pipes, tracing pipes, locating metal objects other than pipes, separating parallel pipes—and tracing and determining the depth of a pipe, and locating cesspools and septic tanks.

By the combined use of illustrations and step-by-step instructions, the booklet describes the various instrument locations and settings required for each problem. In some cases several solutions are given for the same problem. ◄◄



Three low-speed engine-type units installed in new Mill Creek sewage treatment plant.

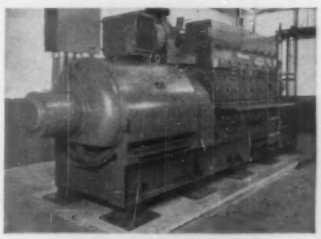
ideal performance at mill creek

Three IDEAL 1350 kw generators, coupled to 1910 hp diesels, turn at 327 rpm to provide power for pumping, comminution, flocculation, digestion and building lighting at Cincinnati's new Mill Creek Sewage Works. A fourth unit, to be installed prior to completion of the facility, will provide a total capacity of 120 million GPD. It's another example of IDEAL equipment selected for outstanding municipal power development projects where dependable power performance is important.

On the job in similar installations across the land and around the world, IDEAL low and high speed generators in ratings from 10 to 10,000 kw are designed and engineered to meet your exact requirements. You can depend on IDEAL's reputation for quality equipment earned in over a half-century of creative electrical engineering. When your specs say "IDEAL", it's the finest!

EMERGENCY STAND-BY

Typical high-speed unit installed on a diesel generating set in a Midwestern metropolitan telephone exchange. 50, 60 and 400 cycle, 10 to 4000 kw for any requirement.



The IDEAL ELECTRIC & MANUFACTURING CO.
353 East First St. Mansfield, Ohio

SINCE 1903, AMERICA'S FINEST MOTORS, GENERATORS, MOTOR-GENERATOR SETS, SWITCHBOARDS AND CONTROLS

Ideas for Good Government Checklist

. . . prepared by the Charlotte, N. C., Public Library for city and county officials

By AL STEWART

Mr. Stewart formerly was on the staff of the Charlotte public library. He is now librarian at Methodist College, Fayetteville, N. C.

The recognition of a library's moral obligation to serve city officials in a direct, tangible fashion has resulted in a service to City Hall occupants in Charlotte, N. C.

The service is a monthly checklist of recently published books, pamphlets, and periodical articles relating to city and county government and administration. Entitled "Ideas for Government," the checklist is compiled by Mrs. Dot Nahory, reference assistant in the Public Library of Charlotte and Mecklenburg County, and distributed to the city manager, councilmen, and department heads as well as to officials of Mecklenburg County, one of the most highly urbanized counties in the state. All books and pamphlets whose titles appear on the list are available for three-week loan, and periodicals can be used in the main branch of the library, located in the heart of downtown Charlotte. Photocopies of periodical material are furnished, for a nominal charge, upon request.

The fundamental aim of the checklist is to make city and county officials aware of printed material on zoning, annexation, water treatment, urban renewal, and other matters requiring definite policy decisions.

With the exception of the first issue, which was distributed in October, 1959, each issue of "Ideas for Government" has been limited to two pages (front and back of a single sheet) and has contained bibliographical information on an average of four books, four pamphlets and ten periodical articles, each relating to one or more facets of municipal or county government and administration. To facilitate reader access to the material, the call number of the book and subject heading under which the pamphlet is filed are also listed.

Periodicals examined carefully for items of interest to city officials are THE AMERICAN CITY, *National Civic Review*, *Public Management*, *Municipal Finance*, and *Municipal South*. Pamphlets listed in the first eight issues were published by agencies of the federal, state, and city governments and treated a variety of subjects ranging from annexation to prevention of juvenile delinquency. Books listed in the first eight issues also represented a diversity of topics, including municipal bonds, public housing, education, and airports.

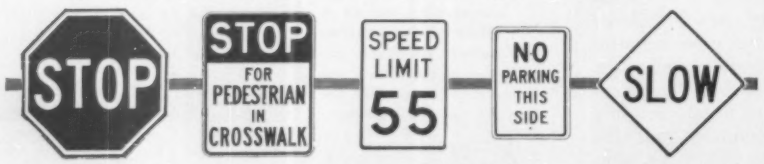
In selecting the items to include in each issue of the checklist, Mrs.

(Continued on page 154)

SIGNS tell a Lot
ABOUT A COMMUNITY

EMBOSSED MIRO-FLEX TRAFFIC CONTROL SIGNS
ARE SIGNS OF PRIDE!

It's a sign of wise buying when a community standardizes on Miro-Flex street name assemblies and traffic control signs. These long-life, embossed signs are uniform, more legible and last years longer than plain, flat-surfaced signs. Miro-Flex can provide signs for any purpose — with either standard or special messages. Find out today why you save for years and years with Miro-Flex. Write for free catalog and prices.



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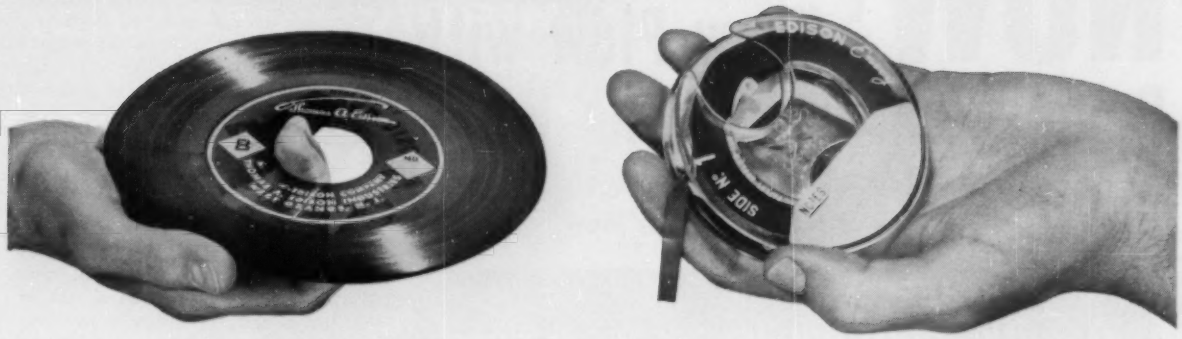
1824 EAST SECOND • WICHITA 14, KANSAS
Standard Traffic Signs Available for Immediate Delivery at Northeastern Warehouse
Koontz Equipment Corporation, 325 Ohio River Blvd., Emsworth, Pittsburgh 2, Pa.

Plain talk about machine dictation:



"Which kind of dictating machine is better for me . . . disc or tape?"

It depends on your specific needs . . . and your budget! The truth is, budget-priced tape units are best for certain jobs; top-quality disc instruments for others. For example, if you require the facility for fast, easy, virtually automatic dispatch of correspondence—with "same-day" mail service—your best bet is a machine using the 15-minute, easily transcribed disc. Or, if you want long "play" time for, say, executive conferences—your requirements are answered best by a tape unit.

Edison covers every price range, every type of dictating machine. As Dictation Center U.S.A., it can fill your business recording needs *well*, no matter what they are. Here's part of the complete Voicewriter line that makes this possible:

"The Voicewriter . . . Edison's finest full-featured office dictating machine!" Far and away the favorite with volume dictators, the automatic Voicewriter offers every dictating convenience . . . including features that eliminate operational errors. Not only helps clear away correspondence . . . it captures ideas, instructions, even speeches. Records on the Edison Diamond Disc.

"The Edison Envoy . . . magnetic tape dictation at a budget price!" New Envoy brings you important features for simple, convenient dictation. Records conferences, phone conversations, too. Also serves as a transcriber when you add optional accessories. Ideal for applications where there is need for dictation facilities at a low price.

"The Edison Televoice system . . . multi-phone dictating facility for remarkably low individual cost!" Offices with many "occasional" dictators find this unique system encourages fast dispatch of all paperwork . . . smooths flow of work to typing staff. Each correspondent has individual dictating phone connected to disc recorders in secretary's office.

"The Midgetape . . . tiny 3-lb. battery-powered tape recorder!" Fire inspectors, police officers, many others find the Midgetape a great convenience. Can serve as an electronic "memory" to record anything, anywhere. Use it to jot down ideas; save facts; make field reports; record interviews; take down statements—word for word.

Mail coupon today for details on Voicewriter equipment to match your own special needs—without obligation.

Edison Voicewriter

A product of Thomas A. Edison Industries, McGraw-Edison Company, West Orange, N.J.
In Canada: 32 Front Street W., Toronto, Ont.

McGRAW EDISON

To: Edison Voicewriter (Dept. AC-11)
Dictation Center U.S.A., West Orange, New Jersey

I think you can help me. I'd like details on the Voicewriter ☐; Envoy ☐; Televoice ☐; Midgetape ☐.

☐ I'd like an evaluation of my dictation requirements, without obligation.

Name_____ Position_____

Department_____

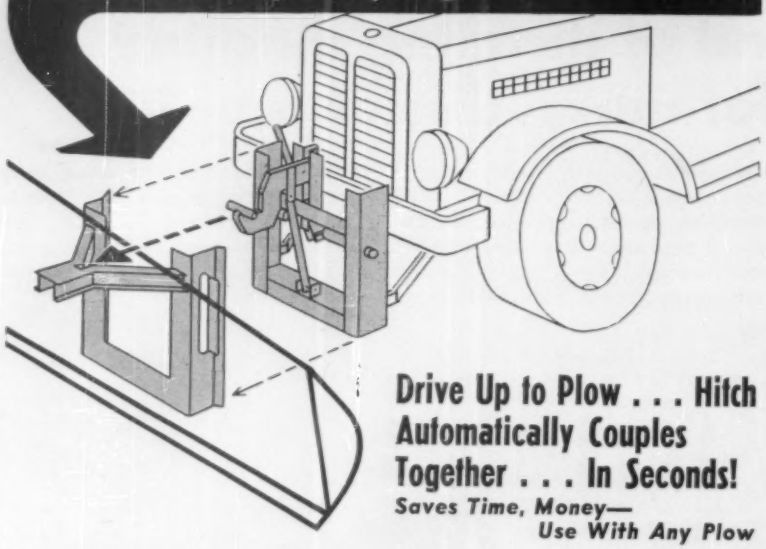
Address_____

City_____ Zone____ State_____

NOW! Buy Any Make Snow Plow with Revolutionary Husting Hitch

DEMAND the Husting Hitch on
Your Favorite Make of Snow Plow

NEVER BEFORE!
A Quick-Snap Coupling for Snow Plows!



Drive Up to Plow . . . Hitch Automatically Couples Together . . . In Seconds!

Saves Time, Money—
Use With Any Plow

The Husting Hitch is Now Available on Every Make Snow Plow Listed

- BALKO
- FLINK
- GLEDHILL
- GOOD ROADS
- ROOT
- VALK
- WISCONSIN SPECIAL

The Husting Hitch

The revolutionary new HUSTING HITCH (patented) does what no other so-called fast coupling can do . . . offers true one man operation in just seconds without leaving the cab. Disengaging is just as easy.

The Spring Pin Action does the trick. The spring loaded pins snap into slots (see illustration) when the truck is driven up to the plow. Standard Hydraulic Controls then permit the driver to lift the plow and get under way without leaving the cab.

HUSTING HITCH equipped Snow Plows and Trucks are interchangeable. Once equipped, the truck can pick up any similarly equipped Plow, be it a Vee, Rigid One Way, Reversible or Trip Blade. ANY TRUCK CAN BE USED ON ANY PLOW.

The HUSTING HITCH has been offered for sale commercially and been in field use from New York to Minnesota since 1955. Each year sales have increased and our claims are based on the experience gained by well over 1,000 installations.

The Husting Flexible Link

A newly developed FLEXIBLE LINK (Pat. Pend.) gives HUSTING HITCH equipped plows additional freedom to follow the contour of difficult roadbed conditions found at some intersections and in alleys. It permits the snow plow to rotate about a central axis. Springs are used to hold the plow level in the carry position and prevent it from going out of control when in action next to a ditch.

The patented HUSTING HITCH (Standard or in combination with the FLEXIBLE LINK) can do a job for you. It is rugged, dependable and foolproof. Be sure to ask for it on your favorite make of Snow Plow. For further information write for descriptive literature and learn about this really new development in Snow Plow Couplings.

KASTEN MANUFACTURING CORPORATION

MARKET 9-2311 — ALLENTON, WISCONSIN

(Continued from page 152)

Nahory focuses special attention on articles and pamphlets relating to current local problems. For example, Charlotte is currently in the early stages of an urban renewal project. Several articles dealing with different aspects of urban renewal have been noted in recent issues of the checklist.

The influence of the checklist has not been limited to Mecklenburg County. Several librarians in surrounding counties have requested copies of each issue of the checklist and it seems probable that these libraries will issue a similar list to governing officials in their cities in the near future. ◄◄

Tree-Planting Rules In Residential Areas

A good street-tree program will help ease some of the "growing pains" which trouble the suburban community.

So says M. W. Staples, field supervisor for the Davey Tree Expert Co., Kent, Ohio, who points out that too many mushrooming areas are planting the wrong kind of trees and overplanting as well. This is apt to hurt not only civic pride but the community exchequer.

For more eye appeal and less financial strain, he suggests a five-point program:

1) Organize a municipal citizen's committee to draft a planting and maintenance program. If a professional tree man or landscape architect isn't available to serve as an advisor, contact the state's department of forestry or appropriate authorities in the state-supported university.

2) Demand that building developers provide streets 60 feet wide between property lines, to accommodate the utilities line that compete with trees for ground space.

3) Take advantage of the smaller types of trees for planting in areas where conflict with utility wires is anticipated. There are special semi-dwarf varieties of maples, flowering cherries and apples, ash, magnolias and others not too well known to the average home owner.

4) For safety's sake, insist upon authority to remove hazardous trees or to prune them to increase the convenience of vehicular and pedestrian traffic.

5) Develop an annual program for removals, planting, spraying, pruning, feeding and maintaining the trees. ◄◄

Naugatuck VIBRIN

Complete Line of Polyester Resins

Christmas Ornaments of reinforced VIBRIN by Carl N. Beetle Plastics Corp., Fall River, Mass.

Enduring signs of Christmas

The stars and bells of Christmas have been displayed for time immemorial. But seldom so attractively, never so enduringly.

For these stars and bells are made of VIBRIN®, the tough, attractive polyester plastic that has a way of making things better than they've ever been before.

Displays made of VIBRIN reinforced with fiber glass will never rot or corrode. Their color is built in, can't scrape or chip off. They are extremely light in weight, yet, for their weight, *stronger than steel*. Thus, they are unusually easy to erect, require minimal support. And they can be used and re-used for untold Christmases to come.

Because VIBRIN can be translucent as well as opaque, displays can be lit from inside or behind, for unusually striking effects. Most important, VIBRIN's ease of molding makes such long-lasting displays economical from the very start.

Investigate VIBRIN, not only for displays such as these, but for park seating, fountains, and other decorative forms... for bus shelters, municipal phone stations, fire alarm boxes. Learn why VIBRIN has proved so popular for sports car bodies, for machine housings, for aircraft sections; why it has become the boat builder's favorite resin. You'll wish you had learned about VIBRIN a long time ago. Write now.

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Akron · Boston · Chicago · Gastonia · Los Angeles · Memphis · New York · Philadelphia · CANADA: Naugatuck Chemicals · Elmira, Ont. · Cable: Rubexport, N.Y.

When it comes time to appoint a trustee or fiscal agent for revenue bonds, The Chase Manhattan Bank is at the service of state, county and municipal authorities. Chase Manhattan has the staff and experience to handle this function as trustee or fiscal agent in cooperation with banks in the areas where the projects are located. For complete details write: Corporate Trust Division, The Chase Manhattan Bank, 40 Wall Street, New York 15.

Telling the World About Voting Machines

A model of a voting machine is demonstrated to Miss Sheila Ferdinand of the Ceylon Mission in New York.

. . . in this national election season the U. S. Information Agency, through its more than 200 centers in 80 countries explains one of the most important rights of Americans—the right to vote

A thousand voting kits prepared by the Shoup Voting Machine Corp., New York, were air-shipped to its centers by the United States Information Agency. The kit contains a 6-foot full-size photograph of a voting machine, a list of questions most frequently asked, and a history of the ballot from 139 B.C. to date.

The U.S.I.A. centers are in 80 different countries. The largest 110 will get, also, small working models of voting machines. They are held to be the best way to demonstrate the secret ballot. They attract attention.

The list of questions and answers will interest American city, county and state officials as well as the people abroad. Here are ten:

Do voting machines operate electrically?

They operate electrically or manually. Some areas have manual machines only. All electrically operated machines convert to manual operation in the event of a power failure. This takes only a matter of seconds to accomplish. Each machine is equipped with a manual lever that fastens to the front of the machine to convert it to manual operation immediately.

Where are the voting machines kept between elections?

In some areas they are stored in warehouses, while elsewhere communities save the expense of warehousing by storing them in public buildings, schools, churches, firehouses, etc.

How much does a voting machine cost?

Voting machines are built to meet ballot requirements. Ballot size and other features, for example, write-in equipment, primary election mechanism, etc., decide the cost of a machine. Therefore, there is no way to give the cost of a voting machine without first evaluating the requirements that it must meet.

Who pays for voting machines?

Voting machines are purchased on the community, county, and state government levels. In the U.S.A., county governments generally (with broad exceptions) buy voting machines. Often, they rent them to the communities within the county for their elections. This helps to pay for the machines while giving the individual cities cheaper elections. However, the ultimate purchaser is the taxpayer-citizen who elects the officials that in turn buy voting machines.

What are the advantages of voting machine elections?

The real reason for voting machines is the unquestionable integrity of a voting machine election. First, voting machines guarantee privacy for each voter. The machines are foolproof and fraud-proof, so every voter knows that his vote is being counted—where it belongs. Finally there is the speed of tabulation; many larger cities have complete returns within two hours—or less! It follows that accuracy of tabulation, speed of tabulation, secrecy, and freedom from fraud are the real advantages of voting machine elections.

Do voting machines save money?

Yes. It is claimed that in most

(Continued on page 158)

(Continued from page 157)

cases the machines will amortize themselves in seven to ten years. They reduce the number of precincts, election workers and election materials.

How extensively are voting machines used in the U.S.A.?

They are used in all or part of 42 states. Seven states have mandatory legislation requiring the use of voting machines.

What safeguards are there to keep the ballot secret?

The ballot on the face of the machine is inoperable until the curtains are closed. When the voter has finished making his selections and turned the voting switch back to the left to register his vote, the curtains do not open until the vote is registered and all voting levers have been turned back to an upright position.

What safeguards are there against frauds?

Once the machine has been set for an election, it cannot be reset or adjusted in any way. Any attempt to tamper with the operation automatically prevents further voting. A combination of keys and seals prevents tampering. Two counters, the daily vote counter inside the machine and the protective vote counter on the right side of the machine case (outside) governed by different internal mechanisms, provide a double check to insure that the number of voters using the machine always agrees with the number checked off the poll list.

Are voting machines hard to use?

A 1959 Gallup Poll cited voting machines as being less confusing than paper ballots. ◄◄

High Political Standards

Politicians can and should "point with pride" to the current high standards of their profession. Dr. Leo C. Stine, Western Michigan University political scientist, directs attention to constructive developments such as these:

The decline of political patronage and the rise of Civil Service: "Patronage is no longer the base of political organization in Michigan and our political organizations are among the best to be found anywhere in this nation."

Buying votes has all but disappeared: "We could never, nor does there seem to be any desire to, finance vote-purchasing campaigns in Michigan."

Political bosses have lost their foothold: "One would be hard put to find a single important political boss in America today of the type which was once found in almost every large city in the nation."

Public contracts are awarded following secret bids, not favoritism or kickbacks: "Cities now demand secret bids and give the work to the contractor who provides the *best* bid. Rural local government still provides some room for manipulation, but there is a definite attempt to get the best bidder."

People in need of public assistance no longer have to "promise" their vote to politicians: "Social security has regularized public assistance payments. In my estimation this may have been the greatest step that we have taken toward the improvement of the moral and ethical level of politics in this country."

Dr. Stine made these points at the University of Michigan's summer institute on Practical Partisan Politics. ◄◄

Protect play areas with **REALOCK FENCE**

The Image of CF&I symbolizes the quality that is built into every section of Realock Fence. Realock is a permanent, low-cost way to enclose school yards, tennis courts, athletic fields, parking areas and other spaces where safety and limited access are desirable.

Realock's symmetrical design blends with the background. And Realock will *not* become "run down" looking because the steel fabric is galvanized *after* weaving to make it weather and corrosion resistant.

Realock Fence is engineered to take punishment. The steel has high strength, yet it is sufficiently resilient to prevent snapping or sagging. Sturdy posts set in concrete provide years of dependable service with a minimum of maintenance.

Realock's professional crews can erect your fence, or your own personnel can easily install it. For full details — and a free estimate — call the nearby CF&I sales office.

THE COLORADO FUEL AND IRON CORPORATION—Denver and Oakland
WICKWIRE SPENCER STEEL DIVISION—40 Colorado St., Clifton, New Jersey

CF&I STEEL

REALOCK FENCE
THE COLORADO FUEL AND IRON CORPORATION
BRANCHES IN ALL KEY CITIES

7162-B

SCIENCE FOR DEMOCRACY...

Introducing... *The First New Voting Machine In 50 Years...*

manufactured by

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a division of: SEISMOGRAPH SERVICE CORPORATION / TULSA, OKLAHOMA

FOR INFORMATION: WRITE BOX 1590

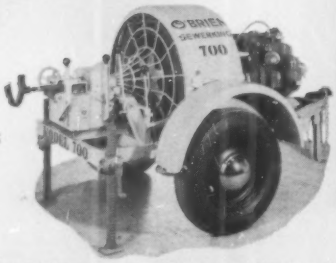
Sewer Cleaning Problems?

Solve them all with POWERIZED O'Brien EQUIPMENT

O'Brien Power Rodder 1000

O'Brien Power Rod Drive

Bucket Machine and Dumper



Sewerking Cable Machines

O'Brien makes a complete line of sewer cleaning equipment. Every unit is the exact answer to a specific cleaning requirement and reflects O'Brien's long experience and familiarity with the field. Economy, efficiency, and convenience of operation are built into every piece of equipment.

O'Brien Power Rodder:

matchless driving and pull-back power, unexcelled for bucket threading and general sewer maintenance. 1200 ft. capacity can be used with either 5/16 or 3/8-inch rod. Equipped with automatic safety throw-out, positive rod drive, and footage meter.

Bucket Machine and Dumper:

featuring exclusive O'Brien hopper. Bucket dumps into hopper; after repeated bucket travel, full hopper is dumped into truck. Use of hopper eliminates truck and traffic tie-up during cleaning operation which relieves truck for many hours of other duties while hopper is being re-filled. 9 hp., 16 hp., and 25 hp. models available.

Sewerking Cable Machines:

compact, powerful, economical cable rodder. Ideal for removing roots, grease, sludge and general sewer waste. Four Sewerking cable models available with capacities from 250 to 600-feet.

Rodding Equipment and Accessories:

O'Brien manufactures a complete line of powerized cleaning equipment accessories and universal replacement parts for all makes of sewer cleaning units.

Call or write for details or see O'Brien in action on your sewer problem. No obligation, of course!

Dept. AC1160

Nationwide sales and service

Demonstrations anywhere

O'Brien MANUFACTURING CORP.

5632 Northwest Highway, Chicago 46, Illinois • Phone: RO 3-7433

Non-Elevator Sweeper Handles "Blow Sand"

. . . in El Paso and a recorder clears up an unfair citizen complaint

By **E. F. MUCKELROY***
Superintendent
Department of Sanitation
El Paso, Tex.

Ennis S. Berry, senior operator of El Paso's Department of Sanitation, was nearly victimized by an unjustified citizen complaint.

Blow sand means trouble to power sweepers in El Paso, Tex. It is as fine as sugar, granulated sugar. When dry it will run ahead of the machine, pushed by the force of the wind from the main broom. When wet it will stick to the pavement like cement.

We did not believe any sweeper without an elevator system to handle the refuse off the main broom could cope with this difficult stuff. We felt that we would have a "sift back" of the blow sand. Two non-elevator sweepers formerly owned by us were flops. If you raised your main broom you dumped the hopper and trouble was constant.

Nevertheless, the Department elected to give a machine of this type one more try. We needed a sweeper with double-gutter brooms for the increasing miles of one-way streets in our city and for our multiple-lane highways, whose center lanes of traffic pose problems like those of one-way streets. Also, the machine had to be small, for easy handling in traffic and use in our business - district night - sweeping program. We settled on a Wayne Model 2-200.

The new sweeper began operations, and shortly proved that the hopper was sufficient to handle considerable distance down a dirty street; that there was no connection between the hopper dumping service and the raising or lowering of the main broom. As the main broom is worn down, and thus made smaller, the operator can move the lip of the hopper forward to compensate.

It took us only a few hours to realize that the core of the main broom is much larger than the core for machines using the elevator system. The larger core, of course, makes the broom itself much greater in circumference, and this is a must in order to get the proper throw of refuse into the hopper.

Problems Solved

We ran into some difficulty in making our first main broom in our Ben-Ko-Matic broom winder. The fiber, when inserted into the larger core, would strike the feeder bars on the machine, and we had to make some minor adjustments in order to chamber the heavier cores.

Also, blow sand leaked out of the hopper when the machine was working. A Wayne factory man, flown in to look over our troubles, came up with an adaptor that seals off the hopper so it will retain the sand. We now feel our selection is a splendid success. The sweeper picks up blow sand and it fits very well into our overall program. The absence of the elevator not only means a lower first cost but problems with the elevating portion of the machine have been eliminated entirely, thus giving us a lower cost of up-keep.

Unfair Complaint

When we purchased the small sweeper and another larger-model Wayne, we had on hand two new Servis Recorders so we could equip the machines with these little devices that tell such vivid stories of a day's work. Upon installing them, however, we had one fine sweeper operator who was very angry about it. He resented the recorders and let it be known.

Some three months after installation the then mayor of El Paso called one day and asked if we had a yellow sweeping machine. I replied that we did. The mayor then informed me that a citizen had called and reported that a yellow sweeper had been parked at a certain intersection for well over an hour. I assured the mayor that we would check out the matter.

Ordinarily, an inspector would have driven out the several miles to see the citizen and to check out the operator's story. We simply waited until the close of the day's work. The chart from the Servis Recorder was removed by the division supervisor, attached to the operator's card, and placed on my desk. Remember that the recorder is locked, and there is no chance to tamper with it.

The chart showed the usual stops for water, for dumping the hopper, for stop signs and red traffic lights, but at 11:30, the chart showed a stop of 29 minutes. The operator's card showed he ate lunch at a drug store counter. His speedometer reading showed 42 miles of travel, and 38 curb miles of sweeping. That operator now believes the recorder is his most valuable record of efficient job performance. ◄◄

---

*Mr. Muckelroy was nominated for the Samuel Greeley Service Award by the APWA at the 66th Annual Public Works Congress and Equipment Show this August in New York City.

What do You look for in a FLOODLIGHT?

(Check the features on this page before you decide)

Are you looking for easier installation . . . aiming . . . maintenance . . . relamping? Higher efficiency? *Permanent* weathertightness? Pre-wiring? Corrosion resistance?

Check and compare the features below before you decide on a floodlight. They tell why the Crouse-Hinds FLA gives more light at lower cost with less maintenance over a longer life!

FEATURES	CROUSE-HINDS TYPE FLA	Mfr. A	Mfr. B	Mfr. C	Mfr. D	Mfr. E	Mfr. F
1. Does it have a back door for easier lamp replacement and cleaning?	Yes	Yes	No	Yes	Yes	Yes	No
2. Does it have a stop to hold rear door open?	Yes	No	No	Yes	No	No	No
3. Does it have a cast aluminum rear reflector housing?	Yes	No	No	No	No	Yes	No
4. Is there a sight on the axis for more accurate aiming?	Yes	No	No	Yes	No	Yes	No
5. Are the door catches adequate for permanent weather tightness?	Yes	No	Yes	No	Yes	Yes	No
6. Is the floodlight wired, eliminating additional costs?	Yes	No	Yes	No	Yes	Yes	No
7. Is the socket shell plated to prevent corrosion and lamps "freezing" in?	Yes	Yes	Yes	Yes	No	No	Yes
8. What is the socket temperature? (UL maximum safe operating temperature 200°C.)	185°C	221°C	226°C	227°C	269°C	211°C	241°C
9. What is the cable temperature (to minimize insulation deterioration)?	135°C	127°C	202°C	150°C	231°C	173°C	162°C
10. Is the lens heat-tempered to prevent breakage?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
11. Is the lens spun-sealed to reflector for positive dust and rain seal?	Yes	Yes	No	Yes	Yes	Yes	No
12. Will the entire floodlight withstand the UL rain test?	Yes	No	Yes	Yes	No	No	Yes
13. Are the gaskets adequate for permanent weather-tightness?	Yes	No	No	Yes	Yes	No	Yes
14. Is the floodlight rigidly constructed for longer life and accurate aiming?	Yes	No	Yes	No	Yes	Yes	No
15. Can you rotate the wire entrance to simplify wiring?	Yes	No	No	No	No	No	No
16. How many beam spreads are available and what are their efficiencies?	14° .. 45.3% 20° .. 44.9% 35° .. 48.6% 50° .. 50.2% 80° .. 57.8%	44.8% 45.4% 53.0% N.M. 60.0%	44.8% 43.8% 49.1% N.M. 57.5%	N.M.* 41.2% 50.5% N.A. N.A.	N.M. N.A. 45.2% N.M. N.A.	N.A.** N.A. N.A. N.A. N.A.	40.4% 40.7% 45.8% 50.4% 55.5%

*Not made by this company. **Information not available.

Want us to back it up? Send for our Bulletins on floodlighting . . . or better still, ask for a Crouse-Hinds illuminating engineer to help out on a specific problem.

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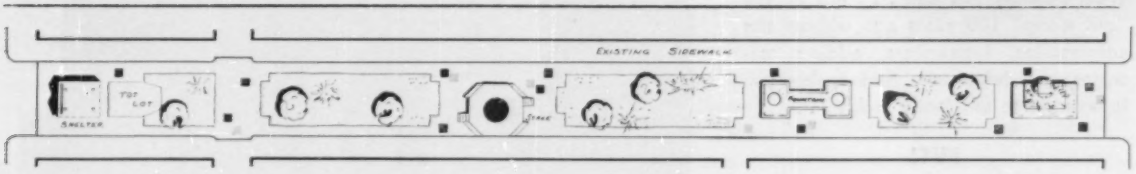
The City Tells Its Story

Edited by PAN DODD EIMON

Municipal Public Relations



An exciting concept . . .

Downtown Malls Are Challenge to MPR

The business district, central city, downtown, mid-town—whatever it is called in your city—needs a shot in the arm. This is true in metropolitan St. Louis, Mo., and in the village of Martin, Tenn. Both communities are among the several dozen experimenting with the idea of a shopping mall as the focal point in downtown rejuvenation.

From the initial idea of a pedestrian shopping street to a mall-in-fact, the project presents public relations challenges. While not primarily a public relations problem (it belongs to the planners) it is so intimately connected with the city government and its citizens, with their shopping habits, attitudes, desires, and with the merchants and business community, that sound public relations thinking and action are needed in every phase.

What are the public relations factors in a mall experiment or the making of a permanent mall? The recorded experience of many cities indicates they are these:

The mall must be part of an overall plan. The mall will fail if presented as a cure-all for downtown ills. It is just one element of a downtown improvement plan.

The sponsor must be an all-encompassing group such as the city government and/or the local Chamber of Commerce. Such a plan needs the broadest possible organization and understanding. The sponsors must be large enough and powerful enough to command attention and respect and to coordinate the many involved groups.

Affected groups must be in "at the beginning" — this means merchants, downtown property owners (not *just* the abutting property owners), shoppers' representatives, the city planning organization, architects and artists, traffic experts, urban transport people, automobile club representatives, and media reporters.

Elicit mall-design ideas from many people and groups. George McHue of the *St. Louis Post-Dispatch* points out that "A pedestrian mall is two things. It is a pleasant state of mind made up of about equal parts of feeling agreeably relaxed and lightly stimulated; and it is a city environment in which this state of mind can be induced and made to flourish." To create such a mall, the city's best talents are needed. In most towns, it has been architects, working with far-seeing merchants and with guidance from the city's planning technicians, who have designed experimental malls. And the most successful de-

(Continued on page 165)

Full-color postcards draw attention to the country's first permanent mall, the Kalamazoo Mall.

Handsomely executed projections, like this, made the presentation of Nashville 1970 a PR success.

CAN YOU "GET ALONG" WITHOUT AUTOMATIC VOTING MACHINES?

Well, possibly you can . . . just as you "got along" 100 years ago without the automobiles, typewriters, adding machines, and telephones that enable you to operate so efficiently today . . .

BUT!

This Is Today . . . Not 100 Years Ago!

products for the public good

AUTOMATIC
VOTING MACHINE

division of **Rockwell Manufacturing Company**

Jamestown, N. Y.

Lower Costs = Higher NET Revenue

KARPARK UNIMATIC
For single car parking. Can be used for an entire system of single car parking, or, when used with Twin-O-Matic, can be placed at street ends and special single locations.

KARPARK TWIN-O-MATIC
Times two cars with one installation. Adjusts to any desired change in regulations. Reduces maintenance and collection costs to unheard-of lows. Ruggedly built for long life.

FOR COMPLETE DATA WRITE TO

KARPARK METERS hold costs to an absolute low . . . Give your city the highest possible net revenue and maximum parking space turnover!

INSTALLATION COST: As new installations or replacements, Karparks are installed easily, quickly and economically.

MAINTENANCE COST: Rugged Karpark construction assures maximum protection against vandalism, collision and the elements. Interchangeable mechanism for fast repairs without down time. Time limit changes handled on the spot without the services of skilled technicians.

ENFORCEMENT COST: Highly visible Karpark dial makes police officer's job faster, easier. Completely accurate, entirely automatic Karparks keep driver complaints and disputes to a minimum.

COLLECTION COSTS: Karparks are available with automatic dump systems, sealable boxes or open top boxes, with coin combinations and time intervals tailored to your needs. Twin-O-Matics provide two-space collections in one operation. All Karparks are virtually tamper-proof.

For Top NET Revenue—
Specify KARPARK!

KARPARK Corporation
Starkville, Mississippi

(Continued from page 163)

signs have incorporated the work of local artists, recreation experts, display and landscape designers.

Presentation of a mall plan takes showmanship. Clinton E. Brush III, who headed his local American Institute of Architects committee in creating "Nashville 1970" at the city's invitation, used two screens, two projectors to present the downtown plan. The presentation was made before a key official group of several hundred persons. The two projectors enabled the audience to see downtown sites as they are alongside the proposed renovation. Two maps, six renderings, and photographs were used. The spectacular presentation brought favorable newspaper reporting and editorials, TV attention, and stimulated members of the audience to think and act. Wrote Mr. Brush, "It was a great step forward in public relations." Commented Mayor Ben West, " . . . this report is certainly the vision in broad scope of the Nashville of 1970."

Pre-mall information can spell success. And the information is needed by several different publics. *Merchants* must be presented with the facts of mall business successes. "The Hitching-Post Complex," *Post-Dispatcher* McHue sums up, "is the biggest obstacle to the pedestrian mall. This is an obsessive belief by merchants that they face certain ruin unless there is a parking space right outside their doors." *Businessmen* must be presented with data indicating what obsolescence and declining downtown business is costing them; what mall potentials are. *Shoppers*, almost uniformly delighted once they "get used to the mall," can be reached by all the mass media—newspapers, radio, TV, shoppers' weeklies, store publications and advertisements. These give the shopper advance information on how he will enjoy new shopping pleasure, comfort, facilities, and new services on the mall. *Drivers*, one of the groups which pulled down the "we like it" percentages in post-mall surveys in Springfield, Ore., and Toledo, Ohio, need parking and traffic routing information in advance of mall-opening dates.

Mall promotion must continue during the experimental period and, in the case of a permanent installation, during the first months of the mall and on special occasions from then on! Illustrative of the value of mall publicity, both by in-city and national publications, is the Toledo experience. Enthusiasm generated by newspapers far outside the Toledo area was reflected in attention by the media and the people *in* Toledo. Toledo's municipal information office worked almost full time, for the several months of the experiment, on publicizing the mall. The result: excellent shopper, merchant, and business-man acceptance of and understanding of the mall, its purposes, and consequent support for the overall downtown revitalization plans.

Where do sound mall public relations lead? In the case of Kalamazoo, Mich., which became the first city in the nation to have a permanent mall, it has led to enthusiastic reception by shoppers, merchants, and the city, and to business development in the central city. Building permits totalling $2 million have been issued since the street-to-mall conversion. City commissioner Glenn S. Allen writes, " . . . increased valuations attributable to the mall installation and subsequent property improvements will produce $35,000 more annually in real and personal taxes." Vice-

(Continued on page 167)

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the #1 PLASTIC PIPE
SPECIFY
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#1 FOR WATER SERVICE LINES
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Costs 50-75% less installed than metal pipe
• NSF approved for drinking water use
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FIRST in research!
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For 7 years now, in U.S. and Canada, contractors of every size, industrial, government and military field men have *tried and proved* the Zeiss automatic level (K&E NP5028). They all concur: it's faster to use, far simpler . . . and far more accurate.

With the Zeiss even a beginner can close with the speed and accuracy of a veteran. Rough level *just once* and go to work. Eliminated for good is the headache of constantly recentering a telescope bubble. The force of gravity does the job automatically, acting on a pendulum-suspended prism. Job time, on an average, is *cut in half!*

A book could be written about the success stories of this remarkable instrument. As a matter of fact, one has been . . . a fascinating collection of case histories from around the world. The book is full of worthwhile tips and techniques. It's free, and a copy can be yours in a week or so, if you write for it, today.

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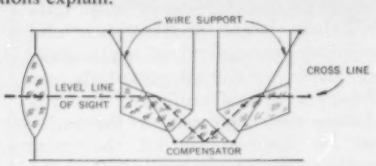
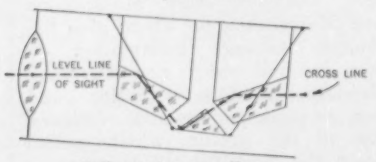
How does the Ni 2 work?

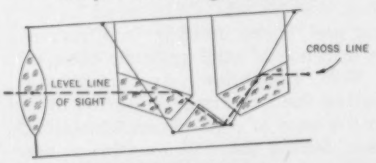
A *built-in compensator* . . . a lower prism suspended by specially treated fine wires . . . *automatically maintains a level line of sight* through the pull of gravity, as these illustrations explain.



Telescope horizontal



When telescope tilts up, compensator swings backward



When telescope tilts down, compensator swings forward

AUTOMATIC COMPENSATOR *ALWAYS* MAINTAINS A LEVEL LINE OF SIGHT

2024

NEW YORK • HOBOKEN, N. J. • DETROIT • CHICAGO • MILWAUKEE • ST. LOUIS • DALLAS • DENVER • SAN FRANCISCO • LOS ANGELES • SEATTLE • MONTREAL

(Continued from page 165)

Mayor Paul E. Morrison, a jewelry store owner, reacts, "Most merchants along the mall have reported that their business is up 10 to 30 per cent over last year for the same period." And Tom Morris, manager of a store just off the mall, says, "It's the best thing that ever happened and I'm looking forward to the day when our store can be incorporated into the mall."

PR Highlights from "Mall" Cities

Springfield, Ore., made three blocks of its Main Street a "Shopper's Paradise" for its ten-day experiment sponsored by the city and related groups. Good PR idea reported by mall architect Donald H. Lutes, "Businesses outside the mall were invited to participate with automobile and boat displays."

Knoxville, Tenn., has a movable sidewalk, to take shoppers from a parking lot level to a new ten-business downtown shopping center. Created by downtown businessmen, merchants, and property owners from their own funds, the project has the city's enthusiastic blessing. The handsomely-designed sidewalk was the headline-maker. Only other of its kind is at Disneyland.

Mooresville, N. C., City Manager Phineas Horton III reports that the "greatest single PR element at work in the Mooresville Plan for its downtown," has been the "cooperative planning of merchants." Meetings of all property owners abutting the mall were held.

St. Louis, Mo., used fashion shows and stage appearances by its Muny Opera stars to attract huge crowds to its experimental mall in the summer of 1960. Media advertising both by the sponsor, Downtown St. Louis, Inc., and downtown stores and businesses spurred interest.

Toledo's Shopper's See-Way provided a handsome stage setting (the mall and its display areas) for the city's 67-square-foot model of "Downtown Toledo Tomorrow," the downtown master plan. Awakened interest in the plan was a major achievement of the experiment.

Milwaukee, Wis., found that a "mall can pall." Milwaukee PRO Gerald Caffrey reports that from 1957 on, the city, merchants groups, and others have proposed a shopping mall. But, according to the *Milwaukee Journal* " . . . one by one the critics pecked away at the proposal until the common council decided it wasn't practical and voted it down." ◄◄

THE FALCON OFFERS FLEET OWNERS BIG SAVINGS IN UPKEEP
THE FALCON GIVES THEM UP TO 30 MILES ON A GALLON AND 4,000 MILES BETWEEN OIL CHANGES
NO WONDER FLEET OWNERS EVERYWHERE ARE BUYING FALCONS
I'VE ALWAYS THOUGHT THE NAVY WAS A SMART OUTFIT!
Schulz

Peanuts Characters © 1950 United Feature Syndicate, Inc.

When we say fleet owners, Linus, we mean businessmen . . . wise businessmen who have found Falcon the best way to save. That low Falcon price, plus the exceptional savings on gas and oil are just the beginning. Falcon's new aluminized muffler normally lasts three times as long as ordinary types. Even tires, repair bills (and in most states) insurance and licensing cost less. And here's more great news . . . so confident are Ford Dealers in Falcon's quality, durability and reliability, they were first to extend their warranty on a 1961 compact car to 12 months or 12,000 miles, whichever comes first. Get all the details on America's best-selling compact car and see a copy of the new, extended warranty at your local Ford Dealer's!

FORD DIVISION, Ford Motor Company.

THE FLEET CAR THAT SAVES YOU MORE

FORD Falcon '61

Water from the Great Lakes will run through this pipe

Elyria's treatment plant is on the shore of Lake Erie. The town is about nine miles inland.

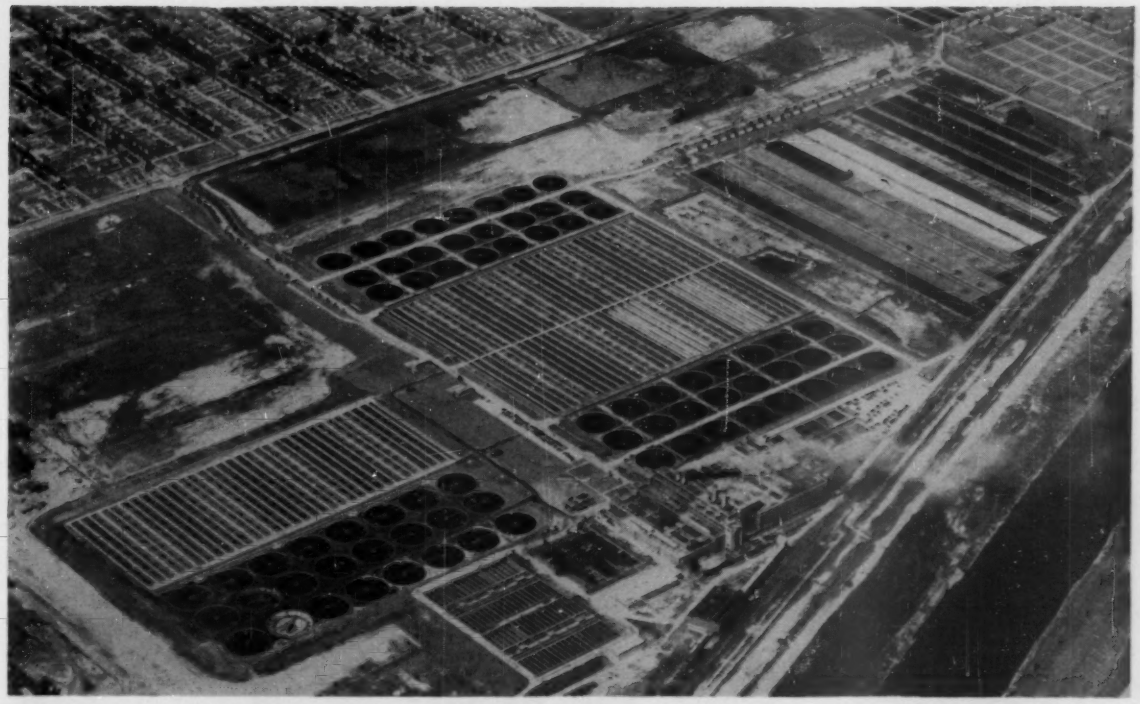
This new 48-inch concrete force main parallels two existing lines of smaller diameter now bringing treated water to the city.

This concrete pipe will give Elyria top capacity, as concrete gives a higher sustained flow coefficient than any other practical material.

Since concrete is a permanent material when buried underground, the line is expected to serve the community for many years to come.

Michael Lotko, Service Dir. and Robert Kleinoeder, City Engr. directed the job for the City of Elyria. Havens and Emerson of Cleveland were the consulting engineers. The Kassouf Company of Cleveland was general contractor. Price Brothers Company manufactured the pipe at its Dayton, Ohio plant.

Price Brothers



The Chicago Sanitary District, serving most of Cook County, is one of the seven wonders of the modern civil-engineering world.

Metropolitan Sewerage Pacts

Part II - The Special Intermunicipal District

By WILLIAM S. FOSTER
Editor
The American City

So-called metropolitan government embracing a group of contiguous local governments to provide needed services to the common good appears to have difficulty gaining supporters today. But Mr. and Mrs. Urban Resident appear willing to instruct their local government to form a regional district to provide sewerage service. Moreover, they have been forming these intermunicipal districts for more than 60 years.

These special sewerage districts bridge the boundaries of cities and often even counties. Unlike many other political entities, these districts often can and frequently do grow. Many have elected officials serving on their governing boards in various ways. The power to raise revenues varies but they do have to operate within the income that these revenues provide them.

Minneapolis-St. Paul

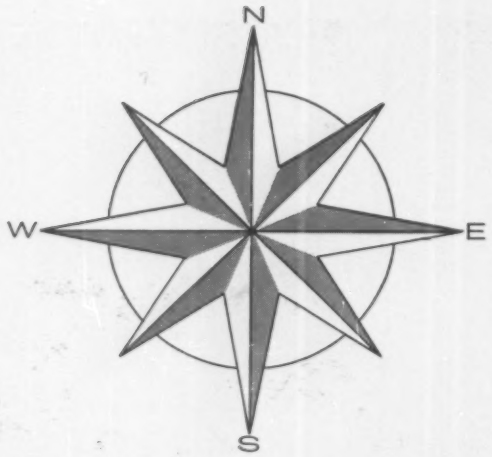
Minnesota's Twin Cities of Minneapolis and St. Paul form an excellent example.[1] The sanitary district embracing the two cities is one of those making use of elected officials on its governing board. The Board of Trustees that manages the District consists of three members from each of the two cities and a seventh member appointed by the Governor; this seventh member must live outside the two cities and the adjacent counties.

The three members from each city consist of the mayor, a councilman selected by the council, and a citizen member also selected by the council. These men serve for terms of four years, unless, of course, the elected officials fail in their attempts for reelection.

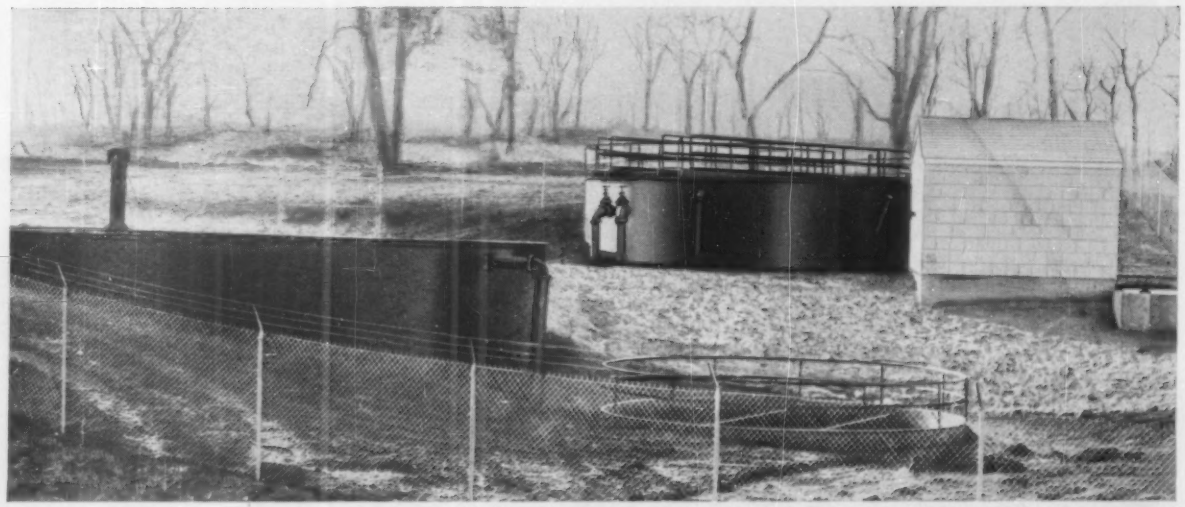
The District receives sewage from 21 suburbs and several outside agencies. However, suburbs and agencies make separate agreements directly with one of the central cities, not with the Sanitary District itself. In Minneapolis, these are called "contracts," while in St. Paul, they take the form of regular city ordinances. Contracts are not all identical.

The two cities, originally apportioned the construction costs on the basis of assessed valuation, but later switched to a proportion based on the volume of sewage flow. Apportioning of operating and maintenance costs has followed the same pattern. Agreements with suburbs

(Continued on page 171)



The Key to Low-Cost **Sewage Treatment** *Over All America* **"SUBURBIA"**



TYPICAL NORTHERN INSTALLATION, shown above, goes below-grade to take advantage of residual ground warmth during colder winters. This one serves 700 homes (245 000 gallons per day) in Gracemor Subdivision, Kansas City North, Missouri. Another northern installation, serving a 3,000-student branch of Michigan State University (and its new 700-home community) has recently been completed near Pontiac, Michigan.

TYPICAL SOUTHERN-STATES INSTALLATION, in lower photo, can go above-ground. Costs drop when tanks need not be buried, true of most of the South. This installation serves 300 homes (105.000 gallons per day) in the Corrine Terrace Development, Orange County, Florida. Another typical southern installation serves 118 homes (41,600 gallons per day) in the Debra Heights Development, St. Petersburg, Florida, with good, low-cost sewage treatment.

All over America . . . bright new communities are rising, made possible only through the foresight of developers, consulting engineers and public works officials. For waste from these communities must be treated efficiently, and at low cost . . . and this is why so many thoughtful people are investigating "Suburbia," the sewage treatment plant priced to fit fringe communities.

This new type of installation provides conventional sewage treatment for communities of 200 to more than 10,000 homes. Because each installation is under the direction of consulting engineers, "Suburbia" invariably conforms to state and local Department of Health requirements.

"Suburbia" can be enlarged for permanent use, or can be dismantled and re-erected elsewhere with virtually complete salvage of components. Because they can be erected in 90-120 days (instead of 10 months, as for concrete-type plants), "Suburbia" can be ready to go on-stream almost as soon as sewage lines are completed.

FOR LARGER COMMUNITIES (involving 1000 or more connections) we can arrange a franchise plan for both the water and sewage systems through a utility company . . . which will furnish, install, own and operate all facilities without delay.

In any case, however, "Suburbia" involves less initial and operating capital than any other type of sewage treatment plant. "Suburbia" is installed and furnished, on a turnkey basis only, by . . .

MUNICIPAL SERVICE COMPANY

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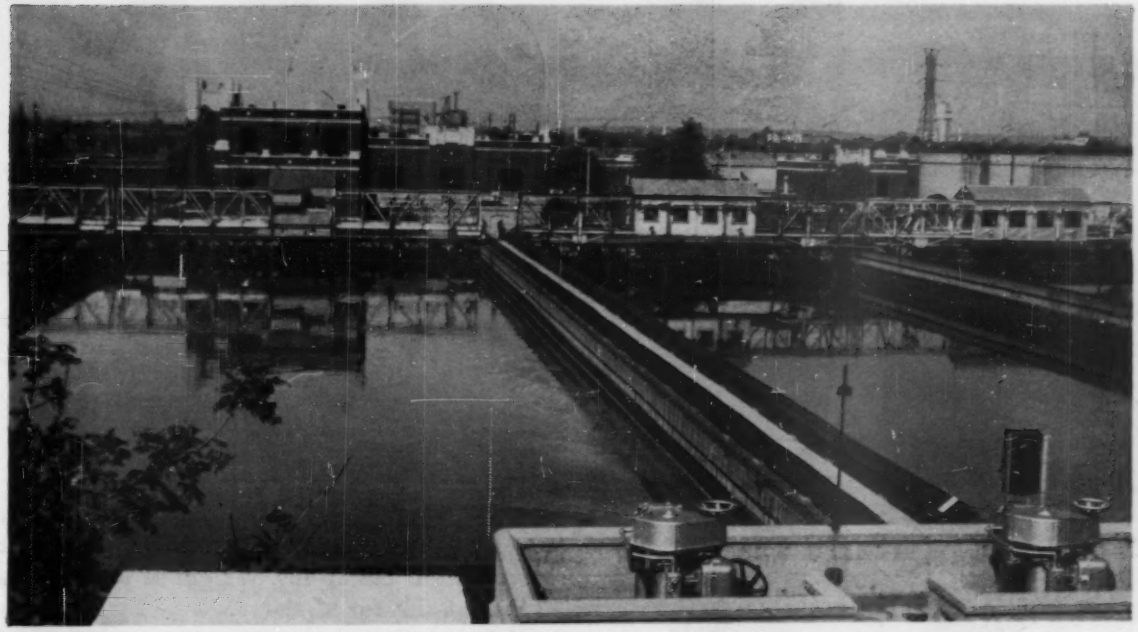


The Joint Meeting plant, shown here, and its trunk sewer system are owned cooperatively by eleven northern New Jersey municipalities.

(Continued from page 169)

and other agencies also are based primarily on sewage volume.

Hartford, Conn.

In Connecticut, the Metropolitan District of Hartford provides both sewerage and water services to the central city and six suburban towns.[2] This District came into being in 1929 through state legislation which required the approval of the voters in Hartford and at least one other town.

A board of 21 commissioners appointed by the governor manages the district. One commissioner, appointed from each town, serves for two years; 15 commissioners, appointed from the district at large, serve for six-year overlapping terms. The district finances itself by assessing an annual levy on the member towns. The charge is proportioned on the basis of property tax receipts for all purposes. However, the Commission currently is considering a proposal to substitute sewage service charges based on water use.

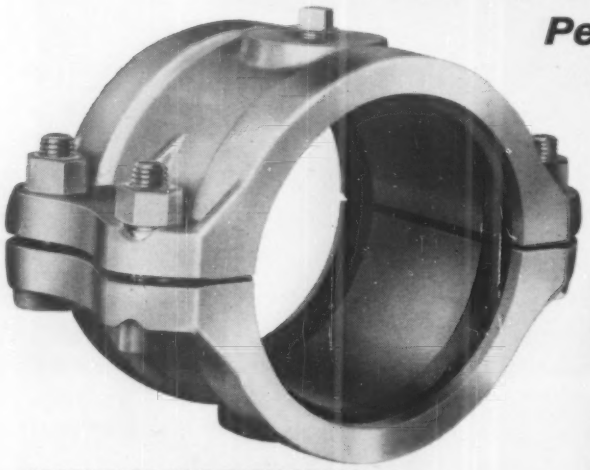
The Hartford District can be enlarged by a vote of approval both of an applying contiguous town and those in the district itself.

The District Commission is organized into Bureaus and Commit-

(Continued on page 173)

The sewer system of the Washington Suburban Sanitary District embraces this area around the nation's capital.

NEW CLOW
Ductile Iron Split Sleeve



Permits easier, quicker, permanent repair of 4", 6" & 8" transverse cast iron pipe underground breaks

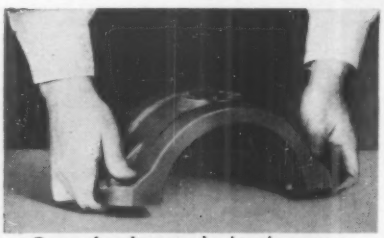
LIGHT WEIGHT Assembled 4″ diameter sleeve weighs but 26 lbs. Weight of 6″ sleeve is 32 lbs., 38 lbs. for 8″ sleeve.

SHORT LENGTH Effective length of 4 inches between end seals on all sizes. Overall length is 6¼″.

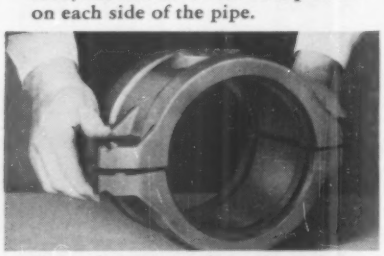
TWO-PIECE ASSEMBLY No end glands. Side and end gaskets are pre-assembled and cemented in sleeve grooves.

HIGH STRENGTH All parts are high tensile and corrosion-resistant. Sleeve halves are 70,000 psi tensile ductile iron. Nuts and bolts are high strength, corrosion-resistant alloy.

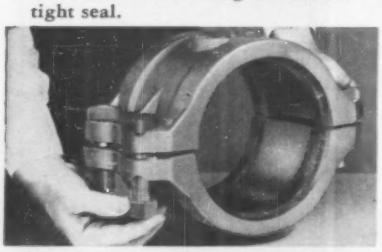
ASSEMBLED IN 3 EASY STEPS



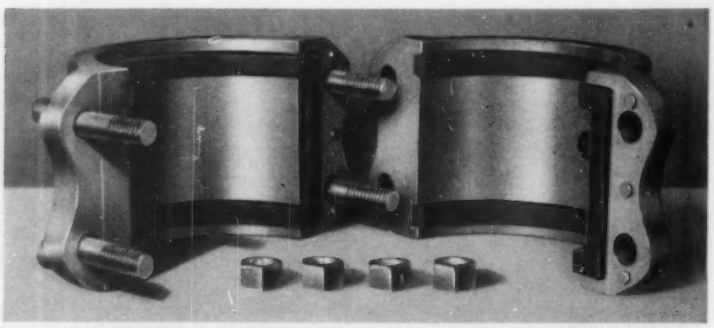
Once the damaged pipe is uncovered, one half of the sleeve is placed on each side of the pipe.



Sleeve halves are drawn together. Pre-assembled rubber gaskets make tight seal.



After the bolts are taken up finger-tight, tightening the four bolts by wrench completes assembly.



HERE'S ALL THERE IS TO IT! Illustration shows two-piece glandless construction. Side gaskets overlap ends of circumferential gaskets for tight seal. Four bolts are only accessories. Tapping boss on each half allows maximum tap of 2 inches. Regularly furnished with one sleeve-half tapped for ¾″ pipe.

JAMES B. CLOW & SONS, INC.

201-299 North Talman Avenue • Chicago 80, Illinois

Subsidiaries:
Eddy Valve Company, Waterford, New York
Iowa Valve Company, Oskaloosa, Iowa

(Continued from page 171)

tees. One, the Bureau of Public Works (eight members) administers the sewerage functions. However, the entire commission decides questions of policy and appropriations.

Washington, D. C. Area

In Maryland, the Washington Suburban Sanitary Commission (WSSC)[3] serves a 427-mile area in two counties adjacent to the District of Columbia. Created in 1918, the Commission is run by a six-man governing board appointed by the Governor on the recommendation of the two local governing boards, Prince Georges County Commissioners and the Montgomery County Council.

For many years, the Commission has worked with the District of Columbia in the development of a regional sewerage system which channels waste through trunk sewers in the WSSC area stream valleys to the District of Columbia line where it is picked up by the D. C. system and channeled to Washington's Blue Plains purification plant. The WSSC pays a service charge for the treatment on the basis of metered volume at the District line and also contributes to the cost of expansions of the D. C. facilities on the basis of its share of the design capacity ($4.4 million so far for the recent expansion of the Blue Plains plant).

The only sewage purification facility operated by WSSC is the new Parkway Plant serving an area in the northeast part of the district Nearby Howard and Anne Arundel Counties have asked the Commission about utilizing part of the plant capacity to serve some of their areas.

WSSC is in complete charge of water and sewerage within its service area, which contains an estimated 600,000 people. In addition, the Legislature has given it the authority to review and approve plans for water and sewerage systems in the two counties in areas outside the district.

The Commission's area of jurisdiction over the years has been enlarged many times by the state legislature as suburban growth continues.

WSSC obtains revenue for construction, operation, and debt service from:

- **Front-foot benefit assessments**

(Continued on page 174)

FOR
BOATING'S
toughest jobs

Here's the power you want for the really tough jobs of commercial boating—Evinrude's 1961 Big Twin. Develops 40 hp at 4500 rpm. New, **foolproof** fixed-jet carburetion. Thermostat controlled engine for most efficient performance under all conditions. Fast-stepping, fuel-saving Cruis-Throttle. Amazingly easy manual starting. Choice of props to fit boat and work. Quieter-than-ever operation. Hard-working, smooth-running, load-lugging, long-lasting, sea-going power—at a price that makes it boating's standout value. If you're a boatman whose living depends on dependable power, the 1961 Big Twin is for you. See your Evinrude dealer—listed in the Yellow Pages under "Outboard Motors."

Evinrude Motors, 4143 N. 27th Street, Milwaukee 16, Wis.
A Division of Outboard Marine Corporation
In Canada: Mfd. by Evinrude Motors, Peterborough

EVINRUDE
FIRST IN OUTBOARDS

New Kelly-Creswell Spray Gun Makes Road Striping Easier

Kelly-Creswell Company, Xenia, Ohio, has a new automatic striping gun for use on highway and industrial road marking equipment. Gun is patented. The gun is diaphragm-operated which eliminates the air cylinder and upper packing gland found in most spray guns. This eliminates the greatest cause of air loss in automatic spray guns. The new gun requires about 25% less air to operate at peak efficiency.
The gun is being installed on all the various types of striping equipment made by Kelly-Creswell. Also available as a replacement part.
Kelly-Creswell is a pioneer manufacturer of a complete line of road-marking equipment—truck-mounted, power driven and hand operated.

For more details, see pages 921 through 924 of the 1960 Municipal Index, or write to:

Kelly-Creswell Company
Xenia, Ohio

THERE IS NO SUBSTITUTE
FOR POWER . . .
Insist on the lights with Power to spare . . . when you need it most!
'sports-type' lights
⅛ the area
VS.
5 TIMES MORE AREA
"Portalites" cover five times the area of 'sports-type' lights with the same or greater intensity! Available with battery-pack specifically designed for emergency lighting . . . gives from 150% to 400% longer light at less cost! Also rechargeable battery types.
CARPENTER MFG. COMPANY
COMPLETE CATALOG ON REQUEST
963 Bradley St., Somerville 45, Mass. Phone MOnument 6-4300

PARSONS® TRENCHLINERS

main cog in new sewer laying technique

Parsons® 310 Trenchliner® with special 70' long conveyor, developed by Morrison-Knudsen engineers, for portion of large Boise, Idaho sewer contract.

Two model 310 Trenchliners are being used by Morrison-Knudsen Company, Boise, Idaho, to lay sewer in a new and unique way that keeps closed streets and blocked driveways to the barest minimum.

Pipe is laid as ditch is dug and backfilled immediately. The 310 tows a special conveyor, developed by M-K engineers, that conveys spoil back into the trench on top of the newly laid pipe. A shaker screen separates fine material from coarse and puts fines down first. A shield protects the crew from cave-ins as they work behind the Trenchliner. M-K has been able to lay up to 525 feet per day.

Some reasons the 310 Trenchliner is so popular for sewer line and water main work: Digs up to 19 feet deep, from 24″ to 72″ wide — and 30 digging feeds from 5′11″ to 8′4″ per minute give you utmost efficiency under all working conditions. See your Parsons distributor soon, or write for bulletin KP552.

Here's the kind of ground the 310 has to cope with on the Boise sewer project.

PARSONS COMPANY
Newton, Iowa

A Division of **KOEHRING** *Company* P17

(Continued from page 173)

levied against property abutting newly constructed lines.

- **A sewer-service charge which is currently set at 16 cents per 1,000 gallons of metered water used.**
- **An *ad valorem* tax on real property, which is a uniform 7 cents per $100 of assessed valuation, paid annually. A major portion of this revenue is used for WSSC storm drainage projects.**
- **Sewer connection charges, currently set at $178 per normal house connection, including a $3 permit fee charge.**

WSSC has authority to issue general obligation bonds to the extent of 14% of the Suburban District's assessed valuation. The current bonded indebtedness amounts to less than 4.5% of the assessed valuation.

Chicago

In Illinois, the Chicago Sanitary District reaches over an area of 900 square miles, or 99% of Cook County, including Chicago[4]. It provides service to about 97% of the county's population and about 95% of its taxable value. It was organized in 1889 to protect the city's water supply—Lake Michigan.

It has a board of nine trustees elected by the voters for six-year terms. Three are elected every two years.

It is assigned the responsibility of providing interceptor sewers and sewage purification facilities for the area it embraces. Laterals still remain the responsibility of the local communities.

It obtains its income from the property tax and can issue bonds to 5% of the assessed value of the District. It also can finance improvements through special assessments and can issue special assessment bonds for this purpose.

Extension beyond the boundaries of Cook County can be accomplished only by act of the State Legislature, and would require a change in the enabling act.

Aurora, Ill.

Also in Illinois is the Aurora Sanitary District, organized in 1925 under the Illinois Sanitary District Act of 1917[5]. The area served consists of the villages of North Aurora and Montgomery, the city of Aurora itself and certain contiguous territory.

Through the years, the area of the District has grown from the original ten square miles to more than 34 square miles. The population served

has risen from 43,000 to an estimated 75,000.

The District has a Board of Trustees of three members appointed by the County Judges of the counties involved. It obtains its income from general taxation. Certain local lateral sewers can be financed through the process of special assessments.

Newark, N. J. Area

New Jersey has an unusual intermunicipal sewerage organization that has been functioning since 1899[6]. It embraces 11 municipalities, some in Essex County and some in Union County, and is known as "The Joint Meeting." It operates under a New Jersey law which permits two or more municipalities to enter into a contract for the construction and maintenance of a trunk sewer and sewage purification plant. Under the act, the Joint Meeting does not have any borrowing capacity itself. Each municipality issues its own bonds to finance the construction needed. The cost of construction is allocated on the basis of capacity rights that each municipality purchases in the system. This is expressed in terms of million gallons of flow contributed daily.

The cost of replacement of any part of the sewer system also is based on the percentage of ownership. However, it is allocated only among those municipalities served by that particular section needing replacement. In other words, if a part of the section must be replaced, the municipalities not contributing sewage to that section are not required to participate in the cost.

The sewer system is owned and operated by the 11 municipalities, each having one vote, regardless of its percentage of ownership. Each municipality is represented on the governing body by one person who must be an elected official of the municipality he represents. Thus, the board of this system has a positive tie to the voters who are served.

The cost of maintenance and operation both of the sewer system and purification plant is proportioned on the basis of flow contributed by each municipality. The municipalities pay from their general tax fund. All the sewage contributed by each of the municipalities is metered as it enters the main trunk line.

This inter-municipal organization can enlarge to embrace other cities. As noted, each municipality owns outright its share of the system's

(Continued on page 176)

Speeds Spot Excavation, Carves Smooth, Clean Holes

Here's a low-cost way to speed spot excavation work, open bell holes or dig under sidewalks — new Shawnee 88-C Hydro-Clam. It mounts easily on most tractors . . . can dig to 12′ depths quickly in congested areas or cramped quarters. Clam bowls operate independently or together for producing level floor and smooth, clean sides. "Hydaway" hydraulic design protects cylinders, pistons, and hoses — makes Hydro-Clam a low maintenance unit. Ask your Shawnee Utility Tractor Dealer for details.

New 88-C Hydro-Clam Condensed Specifications

Breakout: 10,000 lbs.
Lift Capacity: 3,000 lbs.
Boom Swing: 180°
Reach from Pivot: 14′7″
Digging Depth: 12′
Dumping Height: 9′9″
Bucket Capacities: 3 to 5 cu. ft.
Bucket Widths: 16″, 18″, 20″, 24″

PARSONS COMPANY
SHAWNEE DEPT.
Newton, Iowa

A Division of KOEHRING Company

SEND NEW ENGINEERING BULLETIN PS751 ON NEW SHAWNEE 88-C HYDRO-CLAM

NAME _____

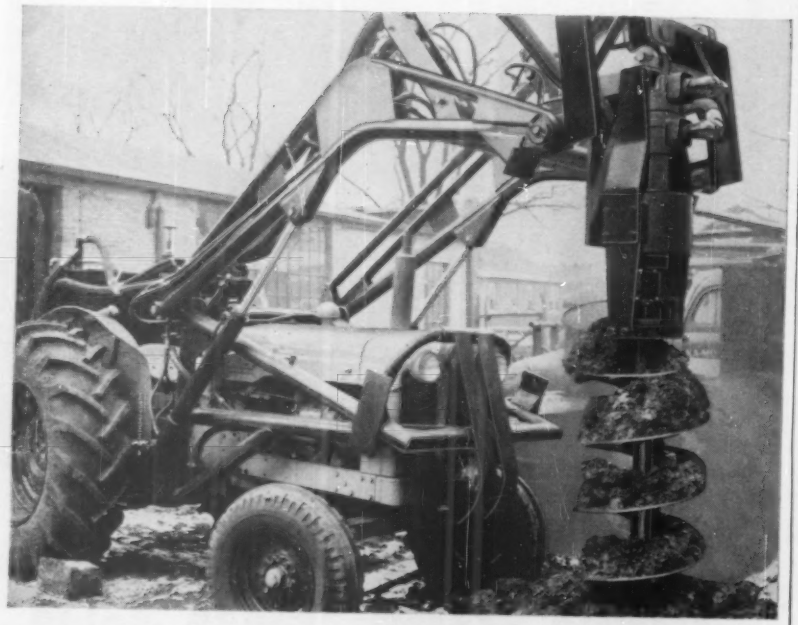
DEPT. _____

STREET _____

CITY _____ STATE _____

S6AMC

KA-MO DRILL RIG Sets Fast Pace on Lighting Project



Only 1½ minutes per hole — that's what this Ka-Mo unit averaged on a recent street lighting project calling for 20″ diameter hole drilled to 6′ depths. The drill is hydraulically operated — takes its power from the tractor's PTO.

For a fast and economical answer to your drilling and boring problems, contact your Ka-Mo drilling specialist. His intimate knowledge of the field, combined with the quality of Ka-Mo equipment line, have helped keep toughest jobs ahead of schedule and within budget. Look to Ka-Mo for drill sizes from 2″ to 48″ in diameter, and larger. KAM3

KA MO **KWIK-MIX COMPANY**
KA-MO TOOLS DEPT.
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A Division of **KOEHRING** *Company*

Send for new Ka-Mo Engineering Bulletin
— covers drill selection, boring capacities, and latest developments in drilling techniques.

NAME..... TITLE.....
COMPANY.....
STREET.....
CITY..... STATE.....
KAM3AMC

(Continued from page 176)

capacity. Therefore a city wishing to join would have to purchase capacity from the eleven members. Moreover, such a transaction must be approved by 75% of the membership.

As can be observed, these special districts are separate from the local governments that they serve, yet many have a direct voter-tie to them. They have to raise their own revenues — some by taxation and some by sewer service charges—and live within their own budgets. Most can grow as the needs arise. They have been offering a precedent for intermunicipal service in growing metropolitan areas for well over a half century. They give some confidence that this intermunicipal cooperation on a truly constructive basis can grow in the future. ◄◄

[1] Minneapolis-St. Paul Sanitary District, 2400 Childs Road, St. Paul, Minn. Kerwin Mick, Chief Engineer and Superintendent.

[2] The Metropolitan District, 115 Broad Street, Hardford 5, Conn. William A. D. Wurtz, District Manager.

[3] Washington Suburban Sanitary Commission, 4017 Hamilton St., Hyattsville, Md. Robert J. McLeod, Chief Engineer.

[4] Metropolitan Sanitary District of Greater Chicago, 100 E. Erie, Chicago 11, Ill. William A. Dundas, General Superintendent.

[5] Aurora Sanitary District, P. O. Box 241, Aurora, Ill. William P. Pfeifer, Superintendent.

[6] Joint Meeting, City Hall, Newark, N. J. Edward P. Decher, Executive Director.

EDITOR'S NOTE: Next month's installment will discuss intermunicipal authorities, and other miscellaneous groups.

Horse-and-Buggy Parking Lot

The only public parking lot in Ohio, perhaps in the world, specifically reserved for fishermen who drive horses and buggies is now in use at East Branch Reservoir, Geauga County. The 450-acre reservoir is one of the water supply facilities for the City of Akron, opened to public fishing by agreement with the Ohio Division of Wildlife.

The horse-and-buggy area and tie-up rail is for the use of Amish people who use only this mode of transportation, and was supplied by the city.

In addition, the Division of Wildlife has helped to build two auto parking lots. ◄◄

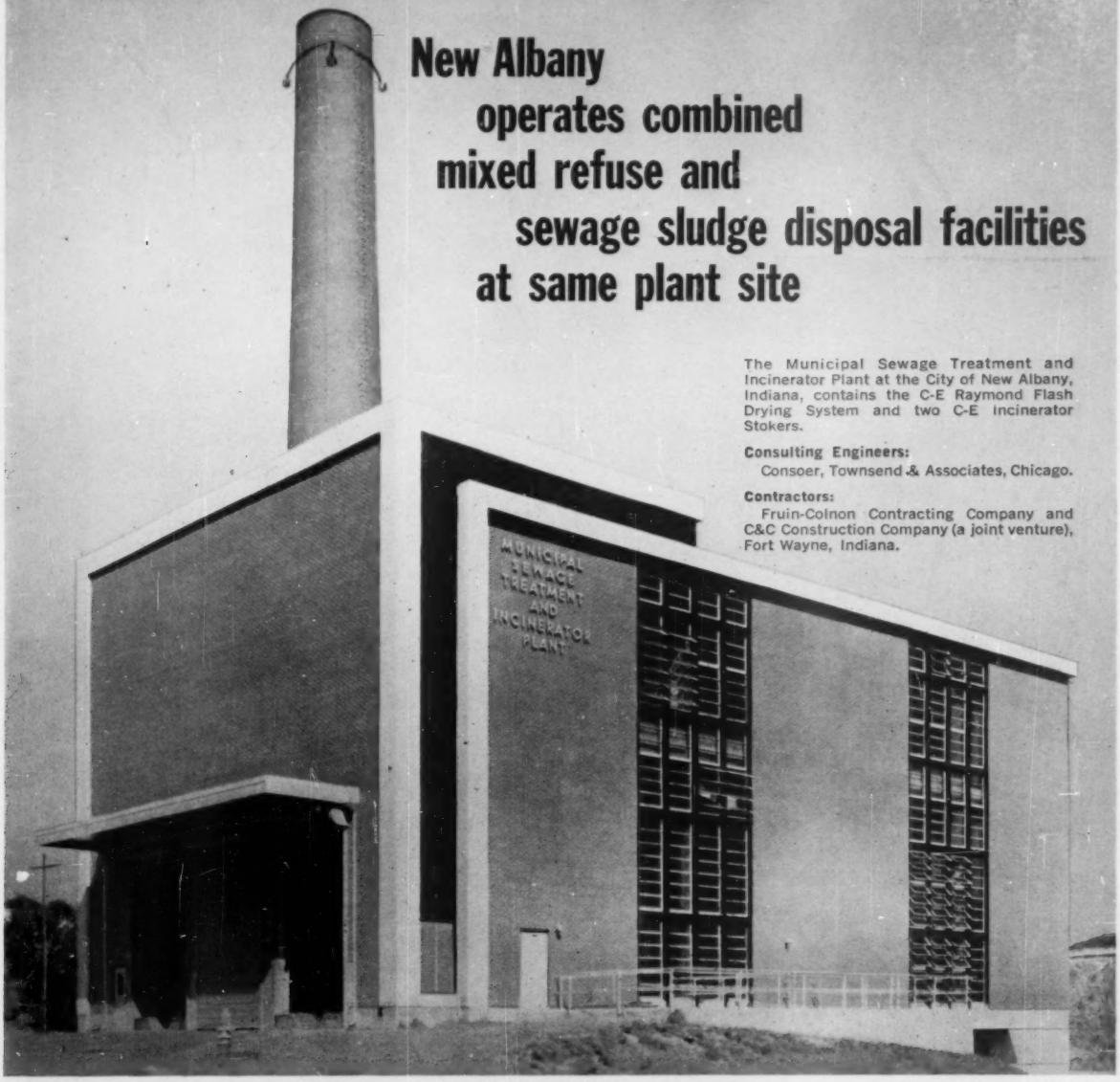
The City of New Albany, Indiana, recently placed in operation a single plant which combines both mixed refuse and sewage sludge disposal functions. The installation of the C-E Incinerator Stoker and the C-E Raymond Flash Drying System at this same site enables New Albany to benefit from the economies inherent in a dual purpose plant.

Two C-E Incinerator Stokers with a daily capacity of 80 tons each, reduce refuse to a sterile ash that is free from clinkers and suitable for use as a sanitary land fill. "No-cost" Btu's from the burning refuse are used by the C-E Raymond Flash Drying System for drying the sludge. The utilization of this heat eliminates all auxiliary fuel requirements.

Primary sludge filter cake is reduced to approximately 8 per cent moisture content in the C-E Raymond Flash Drying System. The dried product can be sold for use as a soil conditioner to help defray plant operating expenses, with any excess being burned in the refuse incinerator.

Each of these C-E systems has been service-proved in installations large and small, and the combination furnishes a dependable and economical solution to a community's sewage-refuse disposal problems. Your nearest C-E office has more information readily available to you or your consultants.

New Albany operates combined mixed refuse and sewage sludge disposal facilities at same plant site



The Municipal Sewage Treatment and Incinerator Plant at the City of New Albany, Indiana, contains the C-E Raymond Flash Drying System and two C-E Incinerator Stokers.

Consulting Engineers:
Consoer, Townsend & Associates, Chicago.

Contractors:
Fruin-Colnon Contracting Company and C&C Construction Company (a joint venture), Fort Wayne, Indiana.

COMBUSTION ENGINEERING

C-293

Raymond Division: 427 West Randolph Street, Chicago, Ill.
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ALL TYPES OF STEAM GENERATING, FUEL BURNING AND RELATED EQUIPMENT; NUCLEAR REACTORS; PAPER MILL EQUIPMENT; PULVERIZERS; FLASH DRYING SYSTEMS; PRESSURE VESSELS; SOIL PIPE

Look beyond the price tag and you'll see why

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OUTSELLS ALL OTHER MAKES OF SERVICE BODIES COMBINED

Precision-crafted by expert workmen who grind welds marble-smooth and finish off all dangerously sharp tray and shelf edges.

Compare doors! Open and slam ours . . . then competitors'. Note our "solid" sound, balanced "feel", superior construction, and "can't-bind", nylon bushings.

Check the styling . . . the modern wheelhouse design . . . the flight-swept, tapered rear. You'll find no other body with so many features.

Finest recessed latches on the market. Fool-proof, safety catches make it impossible for doors to fly open in travel.

Concealed fenders with built-in "lastability" assure at least 10 years of rugged service . . . truly your best body buy.

IMMEDIATE DELIVERY! WRITE FOR BULLETIN AND NAME OF DEALER.

Optional Canopy Top, at left, has 53" floor-to-roof height. Body is also available with compartment-high telescopic roof.

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Another MONARCH CONTROL READY FOR SNOW PLOWING

Right, George Rody, Greenfield Motors
Left, George Falk, Falk Standard Service Station, both West Allis, Wisconsin

Wisconsin folks know what winter means!

Experienced operators depend on Monarch for snappy snow plow operation. Raise and lower snow plows automatically!

That's why George Rody of Greenfield Motors recommends the Monarch Power Hydraulic Control to George Falk of Falk's Standard Service in West Allis.

Winter won't wait for the plow that's late. Get Monarch now, and keep that date . . .

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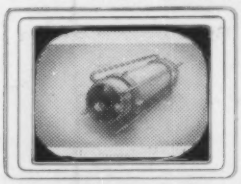
PIPE INSPECTION BY TV

THE FIRST REAL IMPROVEMENT IN PIPE INSPECTION SINCE 1867



Front view of the completely transistorized N.P.R.C camera, showing lens and lights.

The technician, seated in N.P.R.C.'s mobile viewing room, can stop the camera at any time to make still pictures of breaks.

★ **SPOT PIPE BREAKS**

Closed-circuit TV viewing lets you see for yourself what the trouble is and where it is, in pipe as small as 4" in diameter.

★ **SAVE MONEY**

One city spotted and repaired breaks in one bad stretch of sewer line for $2,500. Bids for the same job done the standard way were more than $200,000. Savings: $197,500.

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National Power Rodding Corporation

1000 SOUTH WESTERN AVENUE
CHICAGO 12, ILLINOIS

Purchasing
The Proper Equipment

By R. G. WESSELLS
Procurement Officer
Washington, D. C.

The Purchasing Agent is responsible for getting the proper equipment. In case there are a few people interested in details, there are several approaches to this problem.

First, the operating official tells the purchasing agent he just has to have a Cadillac car. The purchasing agent's answer is, "You can't have it." Occasionally, at this point there is some discord. But the argument is finally settled when one proves he is tougher or more influential than the other.

A second approach is for the operating official to forward a requisition for a large piece of equipment, say, a 2½-yard shovel, complete with specifications beautifully copied from the manufacturer's literature. Usually the purchasing agent takes the unreasonable position that the specifications are apt to be restrictive. A decision is made whether to employ these specifications in soliciting bids or to write some wide-open specifications. In this case, likewise, the question is resolved on the basis of who is the tougher or has the most influence. Of course, this doesn't really settle anything because when you get the bids, if you use the specifications copied from the manufacturer's literature, the operating official takes the view that everybody who doesn't have a particular type of roller bearing measuring 7-65/1000 inch in diameter should be thrown out. If the purchasing agent awards the contract on this basis, he gets eleven protests, you schedule fourteen hearings and exchange reams of correspondence. Finally, you're slapped with a suspension of payment. Conversely, if the wide-open specifications are employed, the operating official can frequently find excellent reasons why the low bid should not be accepted but, unfortunately, he is in compliance with specifications. At this point, the purchasing agent and the operating official go round and round.

A third scientific approach is to bring in the professional specification writer who has a flare for words. I saw a product of one of these fellows one time. We were contracting for bus service for crippled children. One of the specification requirements was that the bus have a steering wheel on the left side of the vehicle, mounted convenient to the driver, (it's always important for steering wheels to be convenient to drivers and this provides an excellent basis for rejecting bids not meeting this requirement); that in the center of the steering wheel there must be a device which, when depressed, will transmit sufficient current to an auditory amplifying mechanism mounted in the front of the vehicle which would emit loud but not discordant sounds to warn of the approach of the vehicle. The fellow meant it should have a horn. There was also a provision that the bus be capable of traveling at speeds of not less than 35 miles per hour on all city streets. Our speed limit is 25 mph. The total specification was so long we never got more than one bid because we couldn't leave it on the market long enough for people to read it all.

R. G. Wessells

Methods

There are countless other wrong ways of going about getting the proper equipment. While there is no stereotyped method of obtaining proper equipment, certain fundamentals are essential.

The purchasing agent must see the operating official's problem, that, while this is perhaps just one more purchase for the purchasing agent, it does represent much more

(Continued on page 180)

MINIATURE 2-WAY RADIO SYSTEM lets you SPEAK and be HEARD under ANY NOISE CONDITIONS!

the SEISCOR TELEPATH

. . . is a portable industrial-type communcations system that becomes a part of your wearing apparel. Crystal-controlled circuit plus noise-cancelling mike and earphones make it the **best** way to communicate in poor visibility or high noise conditions!

- **Fully transistorized printed circuit**
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- **Long battery life**
- **For any single frequency between 20-55 mc., A. M.**
- **No license required on 27 mc. units.**
- **Priced from $350.00 per unit.**

MODEL HR
Hardhat with built-in transceiver, antenna, earphones and mike. High and low noise level models available.

MODEL BR
Belt-clip transceiver and headset with built-in antenna, earphones and mike. High and low noise level models available.

Let Seiscor Engineers analyze your short-range communications problems. Example: Special units have been designed into protective clothing for crash-crew fire fighters.

FIND OUT TODAY HOW TELEPATH CAN IMPROVE YOUR SHORT RANGE COMMUNICATIONS!

Write for name of nearest TELEPATH dealer, and complete information on versatile TELEPATH communications.

SEISCOR
A DIVISION OF SEISMOGRAPH SERVICE CORPORATION
BOX 1590, TULSA, OKLAHOMA

(Continued from page 179)

to the operating official. It is something he has planned for, budgeted for and justified many times. It is an integral part of his operation and he is more aware than anyone else of the contribution it will make. His pride in his operation and this new equipment are valuable to the service. The purchasing agent should not ignore this.

The purchasing agent must communicate to operating officials and industry representatives, the laws, regulations and policies governing public purchasing. He must develop clear-cut ground rules intended to ease the burden of operating officials rather than to impose obstacles. He must convince the operating officials of his genuine interest in working with them. He must be value conscious rather than price conscious.

The purchasing agent must, in one way or another, bring together the views of all operating services who may use the type of equipment being considered in order to insure that equipment specifications are standardized insofar as practical. A good purchase specification should state clearly and simply what is required of the bidder. It should provide a basis for rejecting bids on equipment which will not meet the needs of the service. It should provide a hammer just in case the successful bidder doesn't live up to his contract. There is a greater probability of obtaining these objectives if specifications are of the performance type rather than a description of components.

The purchasing agent must have a clear understanding of the laws, regulations and policies under which he operates and must realize that they are intended to facilitate getting the most value for the tax dollar and not to frustrate governmental procurement. If it develops that needless complications are injected into the purchasing function by virtue of an existing law, regulation or policy, the purchasing agent must seek the necessary remedy to insure that the purchasing function will operate effectively and economically.

The purchasing agent should have adequate authority to negotiate contracts. He must believe that competitive bidding is the most desirable and effective method of expending public funds. This is true from the standpoint of good business as well as proper public conduct. It is rare that negotiation produces prices as favorable as those on competitive bids. However, from time to time situations do develop which make formal competitive bidding impractical. This could be on the basis of the amount of the contemplated expenditure. In the District, competitive bids are not required for expenditures of $2,500 or less. We do get competition on many of these transactions but on a less formal basis. It could be you are buying from an only source of supply because the use of the equipment may be in the nature of an experiment for later possible broader application. Or, it may be a patented item with similar items on the market which will do the job effectively; or repair parts being purchased from the manufacturer of the equipment; or a purchase for an emergency.

Determination of these elements, plus countless others, must be made by the purchasing official. Into his job he takes knowledge, which must progress with the times. He must carry the ball, not as the star performer, but as a member of the team. ◄◄

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Baskets and Urns Excel in STYLE-STRENGTH-ECONOMY

Made of selected steel, these Lawson superior quality products are recognized leaders in beauty and utility.

WASTE BASKETS — Fireproof. Wide range of colors and finishes. Exclusive features protect furniture and floors.

- PANELED TYPE—3 sizes: No. 24, 11¾" high; No. 34, 14½" high; No. 44, 18" high.
- "HIGH-BOY" UTILITY TYPE — No. 108, 20" high; No. 110, 29" high.
- "EXECUTIVE" — No. 2900 with simulated wood panel; space-saver — No. 2180 oblong style. Both 15" high.
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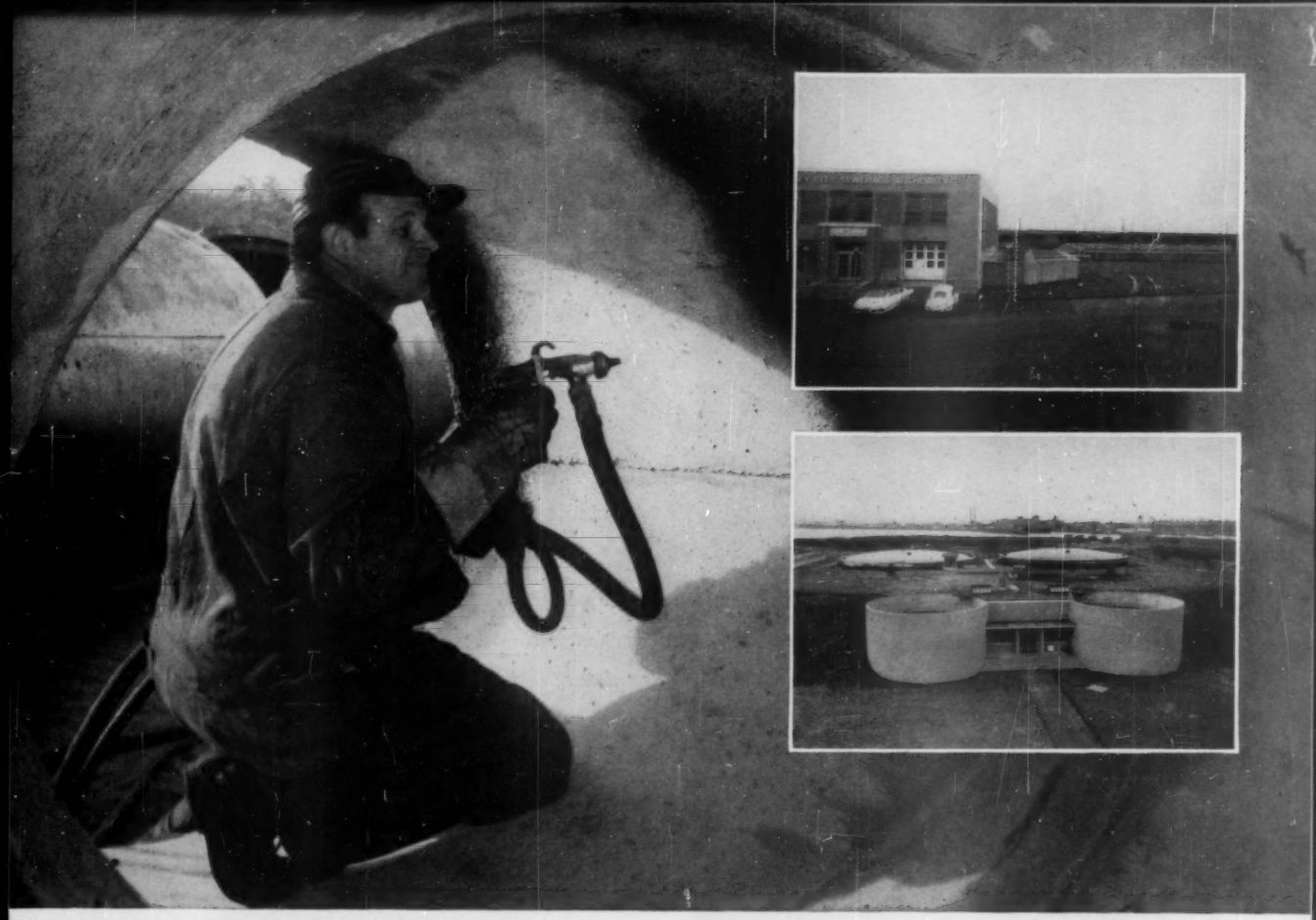

In Jersey City's Sewerage System

H_2S no danger to concrete pipe protected by Bitumastic Coatings

Some 17 miles of large diameter concrete storm and sanitary interceptor lines were laid to link Jersey City's existing mains to the new East and West Side treatment plants. These plants, opened in 1957, have a design capacity of 83 mgd.

To insure maximum life from the concrete pipe used in the lines, Clyde Potts Associates, consulting sanitary engineers for the Jersey City Sewerage Authority, specified that the pipe be given two coats of Bitumastic Super-Service Black on all interior surfaces. This was done in the yards of the pipe suppliers: Lock Joint Pipe Co., and the American Concrete Pipe and Universal Concrete Pipe Companies, now part of American-Marietta. The sprayed applications of this coal-tar coating filled and sealed the concrete, increasing its impermeability to raw sewage.

According to Mr. James Dolan, Superintendent and Chief Engineer of Jersey City's system, "Periodic inspections of the lines have shown no failures of the protective coating system or sewer gas attack on the pipe."

Wherever concrete or metal surfaces are exposed to sewage gases, sanitary engineers have found that tough, impervious Bitumastic coatings solve the problem of corrosive attack.

SEE OUR CATALOG IN SWEET'S

Koppers has published a helpful brochure on sewage plant protection that's yours for the asking. Koppers Company, Inc., Tar Products Division. District Offices are located in Boston, Chicago, Los Angeles, New York, Pittsburgh and Woodward, Alabama. In Canada, Koppers Products Ltd., Toronto.

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COATINGS AND ENAMELS

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Gentlemen:

I'd like a copy of your brochure on sewage plant protection.

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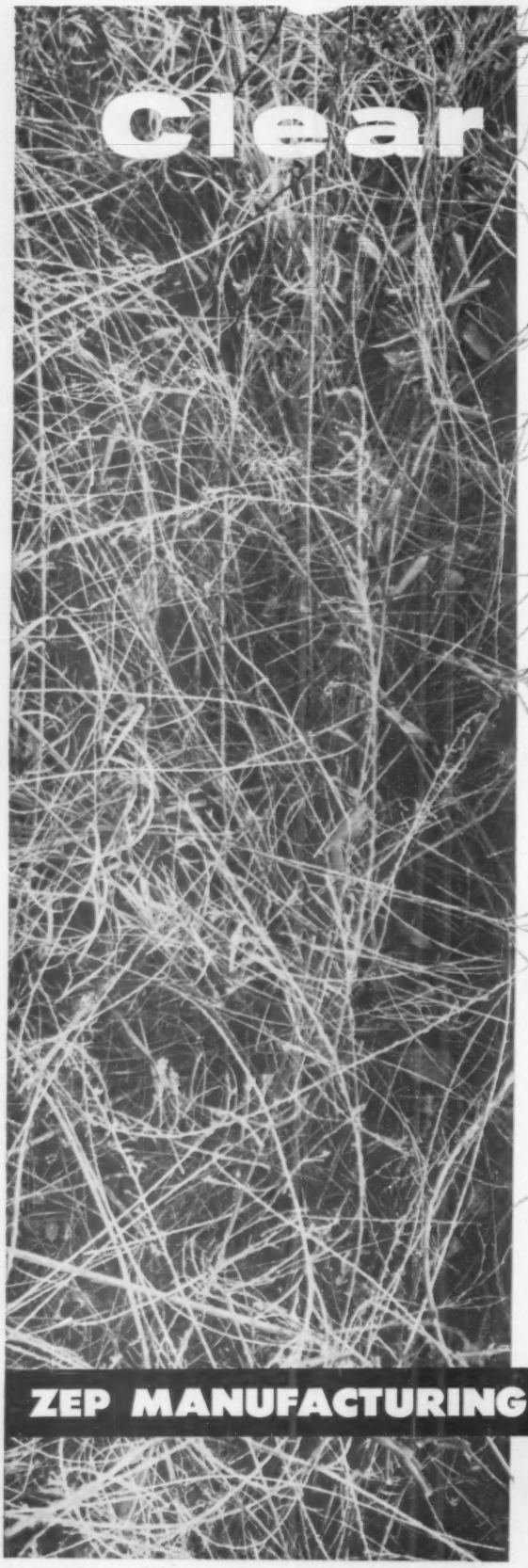

Clear the way

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WEED KILLER

Penetrating deep into the soil, killing buried seeds and rootings . . . stopping weed troubles before they start . . . keeping areas weed-free longer . . . Zep R-59 Weed Killer clears the way to rigid weed control around municipal buildings and other property.

Zep-R-59 is actually the most economical method of municipal weed control there is. Highly concentrated, it is easier to handle and store . . . so powerful that just a little goes a long way, (even diluted 40 times with water it is *still* strong enough to do a complete job) you need to buy it less often. In addition, Zep R-59 cuts labor and equipment costs in maintaining city property.

MANY cities have made Zep R-59 a regular part of their maintenance programs . . . putting it to such uses as clearing weeds from grounds around buildings, parking areas, vacant lots, driveways, rights-of-way, and road shoulders.

For a FREE demonstration of Zep R-59 and its place in your maintenance program, contact your nearest Zep Maintenance Expert, or write us direct, you'll have an immediate reply.

FIRST
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CLEVELAND
13112 Broadway

NEWARK
231 Johnson Ave.

Pigeons Can Be Controlled

Fresno, Calif., develops workmanlike methods of ridding its downtown area of "barnie" pigeons, and finds wide public support

By **RICHARD POTTS***, Sanitarian

Clusters of birds roosting on eaves and ridgepoles sparked the Fresno anti-pigeon program. The building is one of the city's Buddhist temples

Fresno was as annoyed with its pigeon population as are people in most metropolitan areas. While some sentimentalists are fond of them, most administrators know that they are more trouble than they are worth. They deface and accelerate deterioration of buildings and automobiles; contaminate grains and other foods; clog drain pipes, disrupt electrical service. They destroy flowers, lawns, create disagreeable odors. They run up a substantial maintenance bill, to cover the care of buildings, grounds, and sidewalks.

Moreover they frequently are infected with various bacterial, viral and fungal agents of diseases transmissible to man. They also are generally infested with mites and lice. Bird nests attract and support insects and other pests that find their way into buildings.

Downtown Pigeons

So metropolitan Fresno organized to overcome this problem of some 18,000 pigeons frequenting the downtown area. Many people had complained to the County Public Health Department, and the Sanitation Division in turn met with local businessmen and city officials to make appropriate plans.

The first step was to get broad backing for the program. The Health Department organized early meetings to include not only business men and city officials, but also representatives of the Society for the Prevention of Cruelty to Animals, the local office of the Bureau of Vector Control of the State Department of Public Health, pigeon racing clubs, fire and police departments, churches. Radio and television coverage was generous, and the local newspaper heartily supported the program.

A search of literature to learn of programs employed elsewhere was not very rewarding. Chemicals that supposedly repel birds apparently don't. One building owner purchased a supersonic device that was supposed to frighten the birds away. They happily accepted it as another roosting place.

However, we did learn that Burbank, Calif., had enjoyed success with "tranquilizers." So last January, Fresno's city council appropriated $500 to try a pigeon-tranquilizing program of its own.

The city also made a survey to determine the places where the pigeons nested, roosted, fed and watered. Observers determined the flight pattern of the birds and estimated the number in each area. The newspapers urged the public to report areas frequented by the birds. The public responded in good style, reporting problem areas previously unknown.

In all, Fresno employed three methods to reduce its pigeon population. These are, in order of their use:

- **tranquilizing, which was the most dramatic**
- **trapping**
- **loft raiding**

Before trying the tranquilizing method, Fresno did a little experimental work with about two dozen pigeons to determine the amount of drug needed, and its effect. City crews used three different grains: cracked corn, milo and a commercial pigeon mix, soaked in a 33⅓% solution of tri-bromoethanol* for 43 hours in a closed container, inverted occasionally and dried at room temperature away from the light. A combination of 100cc tribromoethanol and 200cc of absolute alcohol will treat approximately five to six pounds of grain.

During the experiments with the treated grain, the birds ate voraciously until the onset of a combination of drowsiness and instability. This was followed by a period of excitement after which heads were lowered, feathers puffed out and the birds were in deep narcosis.

In actual practice, crews would feed the pigeons at definite stations, using untreated grain until large numbers of birds had gathered.

On a quiet day, the pigeons received treated grain. Next the crews would "harvest" the sleeping birds and turn them loose in

(Continued on page 185)

* Mr. Potts is Sanitarian, Fresno County Public Health Department, Fresno, Calif., and was responsible for the initiation of the program described herein.

* Tri-bromoethanol is available under the trade name of Avertin which contains one gram of tri-bromoethanol and 0.5 of a gram of amylene hydrate per cc of solution. It is distributed by the Winthrop Laboratories.

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(Continued from page 183)

the Humane Society aviary where objectionable birds would be "put to sleep" in the high-altitude chamber, and then incinerated.

While the tranquilizing method captured many pigeons, it did not catch enough, so the city crews built 12 traps in sections, capable of being assembled on rooftops or where needed. These traps, spotted in strategic locations accounted for 80 to 100 birds daily. After a period, the birds became "trap shy" and the crews would move them to more productive spots. Personnel working with the traps used face masks and gloves to reduce the risk of contracting the diseases mentioned earlier.

During the survey, investigators located lofts and attics where many pigeons nested. This of course was a key point in the whole problem. Teams of racing club members, supplemented by volunteers from the fire department and using fire-department equipment, entered these lofts at night and destroyed the nests and eggs. Probably this was the most important part of the program.

The program resulted in cleaner sidewalks and less downtown confusion. The work has required the services of one man four hours a day for seven days a week. He tends traps, collects birds, and sets out grain and water. For this area the costs ran from 35¢ to 50¢ per bird to catch them using the tranquilizers. The traps can take a bird out of the area for 10¢ to 15¢ each.

Subsequently many property owners started their own trapping programs. It also uncovered important points needing emphasis for effective control of pigeon overpopulation.

Continuing Program

First, the program must be a continuing one. As the downtown bird population drops, outlying birds migrate to the downtown area.

Next, the city needs to develop and enforce building codes that discourage nesting and roosting. After lofts and attics have been cleared, all entrances must be sealed to prevent reoccupation. Ornate cornices, flat ledges, and marquees should be discouraged to reduce pigeon nesting places.

Fresno's current program is being continued by the police and fire departments. ◄◄

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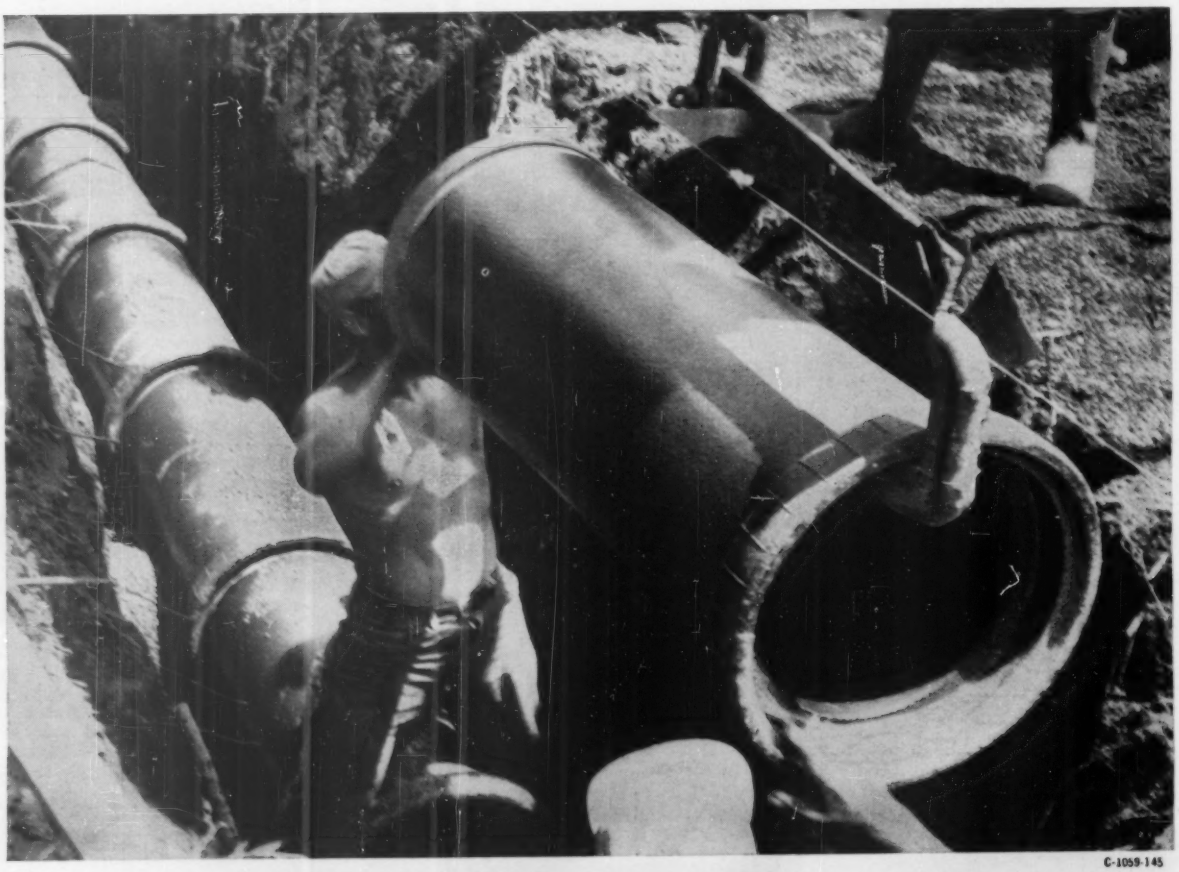

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ZONING AND PLANNING NOTES

Edited by NORMAN WILLIAMS, Jr.

Housing and Urban Renewal Decisions

CONNECTICUT. *Cawley* v. *Housing Authority of the City of New Haven*, 152 Atlantic (2d) 923 (Supreme Court of Errors (highest) Court), June 26, 1959).

MINNESOTA. *Asch* v. *Housing and Redevelopment Authority of City of St. Paul*, 97 North Western (2d) 656 (Supreme (highest) Court), June 26, 1959).

WISCONSIN. *Redevelopment Authority of City of Madison v. Canepa*, 97 North Western (2d) 695 (Supreme (highest) Court, June 26, 1959).

TEXAS. *Davis* v. *City of Lubbock*, 326 South Western (2d) 699 (Supreme (highest) Court, July 15, 1959).

The *New Haven* case involves a state-supported "moderate-rent" housing project with 154 dwelling units, renting from $67 to $76 a month. It was designed to provide two or three acres of play space, and a floor-area ratio of less than 0.2. The Authority proposed to build it on a 21-acre vacant tract in a single-family residential neighborhood in *East Haven*. Nearby property owners challenged the project. In a previous decision*, the Connecticut courts dismissed the first action aimed at the proposed development; however the present suit was thereafter brought on the ground of special and irreparable damage, with an allegation that the proposed housing units would be a "nuisance."

In the opinion, the Court gave an interesting summary of relocation problems in connection with the large-scale redevelopment of New Haven, and held briefly that there was no substance to the present claim.

The *St. Paul* case involved the condemnation of blighted land and its subsequent resale to Sears Roebuck & Co. The proceedings were challenged on a number of grounds, including the basic constitutional issue of public use, a number of technicalities—and an allegation that the redevelopment plan was not properly adopted because there was no finding as required in the Title I legislation authorizing federal aid, that such plan conformed to "a general plan for the development of the locality as a whole."

In the opinion, the Court dismissed all allegations, in the tried and true tradition of most, through not all, litigation involving redevelopment projects. However, the opinion contains one feature of interest—the discussion and legal treatment of the planning background for redevelopment. While the local City Planning Board had adopted a "central plan," however, they admitted that no "general plan," formally designated, was in existence. However, the City Council made the necessary finding to process the project—that the redevelopment plan conformed to a general plan for the locality. A legislative amendment, recently adopted, clarified the definition of "general plan" to include "central plan" as here adopted. After stating all these facts, the Court held that, even in the absence of such legislative clarification,

> "we are *unable to conclude that the distinction in semantics between "central plan" and "general plan" subverted the intent of the legislature.*"

The question noted above is one of the basic ones in American city planning. The federal Title I legislation requires that projects subsidized thereunder must conform to a local general plan, and there is an elaborate manual spelling out this requirement. There is no question that this requirement has been widely honored in the breach, with frantic last-minute scurrying around to produce the requisite papers, referred to as a "plan," which will show that the proposed project will fit into at least some sort of broader scheme for the community's future development. The problem, of course, is that usually no such scheme exists; and cities are, understandably enough, reluctant to delay all action for several years until a sensible one is worked out. However, the situation also contains the seeds of its own solution, for the federal requirements have undoubtedly served as a major stimulus to planning in American cities. The real question is two-fold:

a. Whether, at the time a renewal project is under consideration, the local authorities are willing to view it in the context of the best planning judgment locally available—fitting the project to the emerging plan, not vice versa, and

b. Whether the local planning efforts are being rapidly progressed to the point where a comprehensive ("master") plan will be available to provide guidance for wise use of the scarce resources available for renewal.

In the *Madison case*, the Wisconsin constitution contained a provision that, as a prerequisite to condemnation of property by a "municipal corporation," there should be a jury verdict establishing the necessity for such condemnation. This case involved the validity of condemnation by the Madison Redevelopment Authority without such a jury verdict. The Authority of course entered a defense on the ground that it was a state agency, not subject to the requirement.

After a long review of the legislation, the Court held that the Authority was "an independent public corporate body," not a municipal corporation, and thus not subject to the constitutional requirement; and it was also held that the relationship between the Authority and the city was not such as to make the Authority subject to such a requirement. The opinion also contained a frank statement on the background and present states of redevelopment.

> "There is a compelling need in our growing metropolitan areas for the redevelopment of some of their land so as to bring about the use of that land for purposes which fit sensibly into the present and prospective needs of the entire community. Federal funds are available in order to assist in the expensive task of redevelopment. The people of Wisconsin, as of other states, naturally desire to make good use of the available federal funds which their tax payments have helped to provide."

In the *Lubbock* case, the state urban renewal law provided that the powers provided herein could be used only after a local election, to determine (a) whether slums existed in the locality, and (b) whether slum clearance action was necessary. In this case, the City Council had made appropriate findings of residential blight and a local election had duly established the existence of blight and the desirability of slum clearance.

In the opinion, the Court held that the proposed taking was for a public use. As usual in such cases, the arguments centered around the resale to other members of the public. The court recognized that such a return to private ownership did make the constitutional question a bit more difficult than the case for public housing; but it was indicated that the existence of provisions protecting the city against the revival of slums was sufficient to settle the question.

> "If this were all that the Act provided, this case would be much more difficult. The cities, on the other hand, point out that the Act provides that the land may be sold only upon such necessary terms, covenants, conditions, and zoning ordinances as will prevent, for the foreseeable future, the recurrence of the slum conditions, and that the purchaser must redevelop the property, not in accordance with his own desires, but in accordance with the plan adopted by the city."

The long opinion included a history of eminent domain in Texas and held specifically "that these proceedings satisfied the requirements both of public use (eminent domain) and of public purpose (for the spending of tax funds)."

Moreover, detailed judicial review *de novo* of the designation of the area involved as a slum, as explicitly provided for in the Texas enabling statute, was held to be an invasion of the legislative province—to "clearly involve the exercise by the courts of non-judicial powers," and so to be invalid.

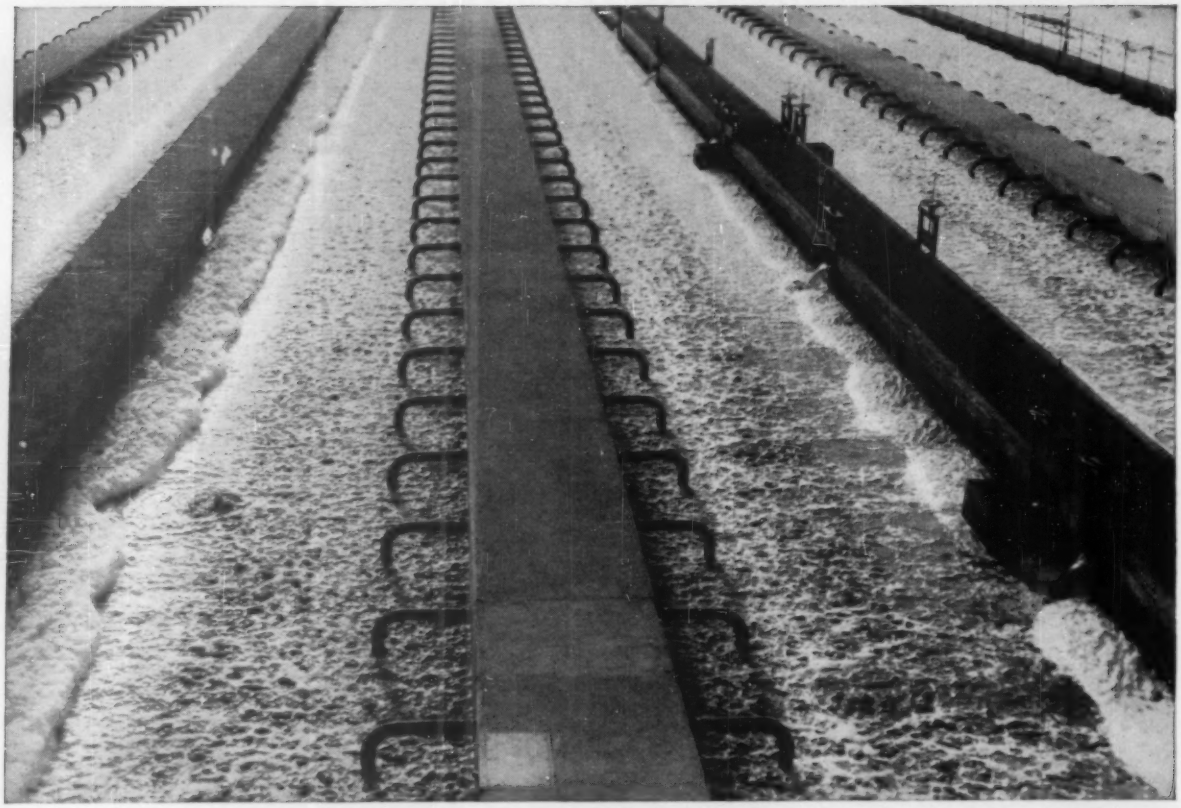
Variance in Density Regulations—Criteria In New York

NEW YORK. *Wachsberger* v. *Michalis*, 191 New York Supplement (2d) 621 (Supreme (lower) Court, September 2, 1959).

In this case a two-family house was proposed on a lot which, as a result of a recent zoning amendment, was just under the minimum lot size required for such a house in the district. In denying the application, the Board relied on the traditional criteria for a variance in New York law as set forth in *Otto* v. *Steinhilber*, 282 New York 71. The lower court reversed this on the doctrine, set forth in various recent New York cases, that the traditional rule applied in cases of use variance, but not in cases involving area (i.e., bulk) variances, where a showing of "practical difficulty" was enough. A showing of special hardship was therefore not necessary. The Court then remanded the case to the Board, and specified the criteria to be used in this determination.

> "To that inquiry the question whether the property can be used for a one-family dwelling has only slight, if any, relevance. In its determination the Board should consider (1) how substantial the variation is in relation to the requirement, (2) the effect, if the variance is allowed, of the increased population density thus produced on available governmental facilities (fire, water, garbage and the like), (3) whether a substantial change will be produced in the character of the neighborhood or a substantial detriment to adjoining properties created, (4) whether the difficulty can be obviated by some method, feasible for the applicant to pursue, other than a variance, and (5) whether in view of the manner in which the difficulty arose and considering all of the above factors the interests of justice will be served by allowing the variance. On all except item '4' the facts presented in the petition in this proceeding favor the granting of the variance."

*Benson v. *Housing Authority of the City of New Haven*, 145 Connecticut 196, 140 Atlantic (2d) 320



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LEGAL NOTES AND DECISIONS

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS, Charles S. Rhyne, General Counsel

Airports—
Zoning Ordinance Upheld

In action by airport authority to enjoin erection of superstructure atop building near runway to height in excess of that allowed by county airport zoning regulations, held injunction granted. *Harrell's Candy Kitchen* v. *Sarasota-Manatee Air. A.*, 111 So.2d. 439 (Fla., April 17, 1959)

Building Permit for
Filling Station Ordered

In action to obtain building permit for filling station where previous permit had been issued but lapsed, held issuance ordered since first permit caused to acquire new characteristic which was not lost by subsequent failure to exercise new use. *Cities Service Oil Co.* v. *Board of Appeals of Bedford*, 157 N.E.2d 225 (Mass., March 18, 1959)

City Employees—
Discharge Upheld

Where city employee was discharged after absence of two days and Commission acted in reliance on civil service rule, held employee had no right to court appeal when she claimed no violation of constitutional rights. *Mason* v. *City of San Antonio*, 324 S.W.2d 90 (Tex. Civ. App., May 6, 1959)

City Employees—
Sick Leave Pay Awarded

In action to recover sick leave pay, held applicable law directed that sick leave payments be made to qualified employees as matter of right and not discretion and such right could be enforced by action at law. *Hines* v. *New York City Transit Authority*, 185 N.Y.S.2d 56 (N. Y. Sup. Ct., App. Div., Feb. 10, 1959)

Civil Service—
Action Brought Too Late

In proceeding to compel city civil service commission to honor petitioner's right to veteran's preference and to place him in position of fire chief, held action dismissed since list on which petitioner's name appeared expired before commencement of action. *State* v. *Kachelmacher*, 96 N.W.2d 542 (Minn., May 1, 1959)

Condemnation for Power Line—
Award Set Aside

In action by public utility for right of way for power line across defendant's land, held plat which had not been recorded was not competent evidence for purpose of showing value of land or amount of damages. *Northern Indiana Public Service Co.* v. *McCoy*, 157 N.E.2d 181 (Ind., March 24, 1959)

Contracts—Compensation for
Personal Services Awarded

In action by businessman to recover value of personal services rendered city as negotiator in purchase of waterworks under contract requiring reasonable compensation, held contract was valid. *Burger* v. *City of Springfield*, 323 S.W.2d 777 (Mo., April 13, 1959)

Contracts—
Conflict of Interest

In action by taxpayer to recover sums paid to member of city's board of public works for material and services furnished by board member to city, held contract invalid and city awarded recovery. *Arthur* v. *Trindel*, 96 N.W.2d 208 (Neb., April 17, 1959)

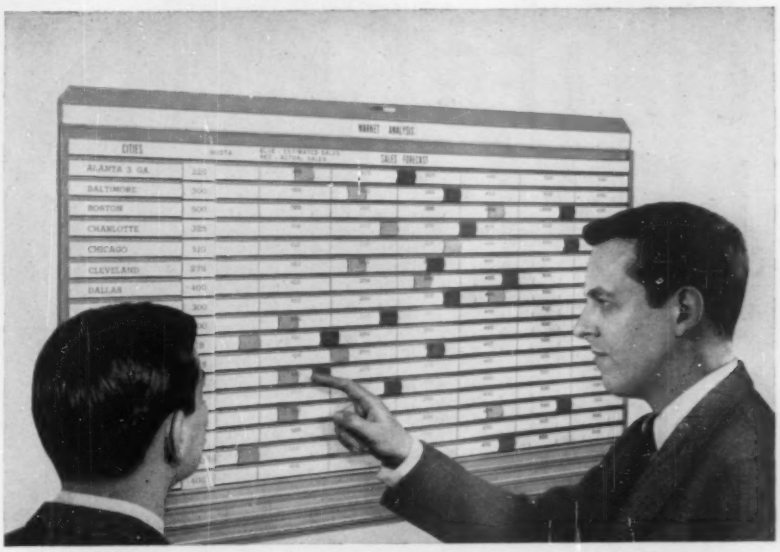
Contracts—Damages Limited
To Amount of Deposit

In action concerning defendant's refusal to enter into contract for transportation of pupils on certain route after it was awarded contract as lowest bidder, held damages limited to amount of deposit submitted with bid and board not entitled to difference between defendant's low bid and that of next lowest bidder. *Board of Education of Fairlawn* v. *Fairlawn Plaza Taxi, Inc.*, 150 A.2d 793 (N. J. Super., App. Div., May 5, 1959)

Contracts—
Housing Awards Set Aside

In action by low bidder to annul construction contract awarded by city hous-

(Continued on page 190)



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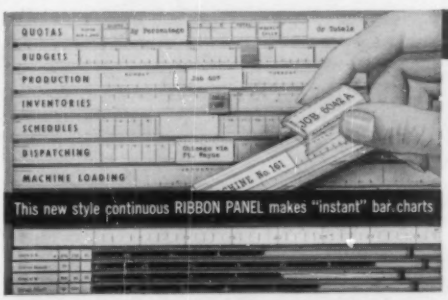

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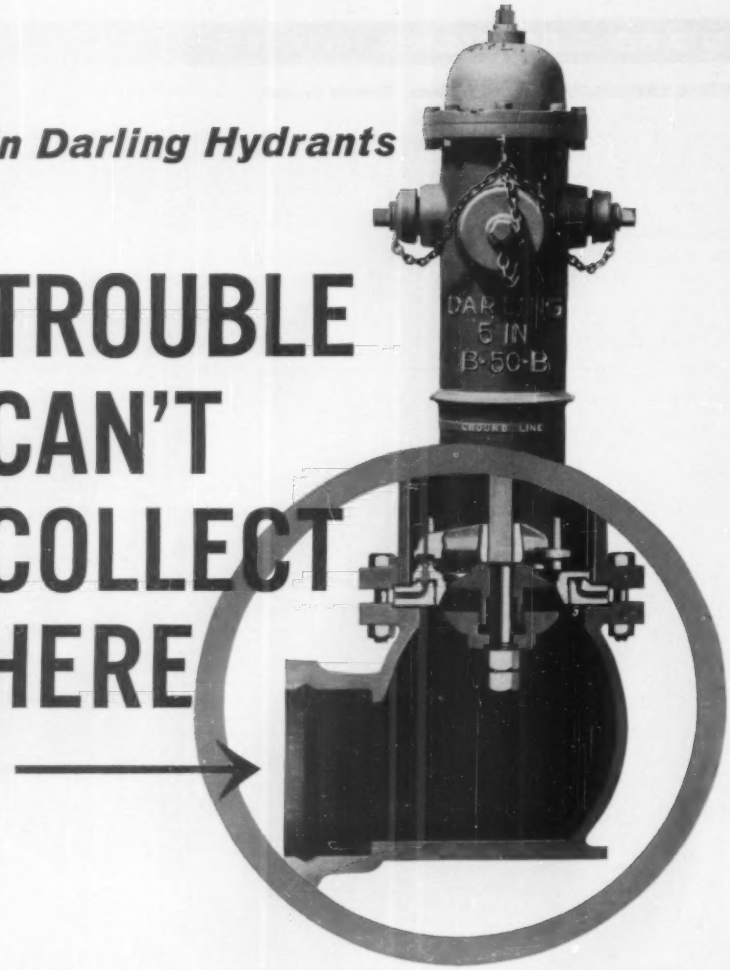

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(Continued from page 189)

ing authority, held authority abused discretion when it decided low bidder was not responsible bidder without giving him fair chance to disprove such charges. *Housing Authority of Opelousas, La.* v. *Pittman Const. Co.*, 264 F.2d 695 (5th Cir., March 10, 1959)

Contracts—
Lack of Appropriation

Where ordinance authorizing issuance of sewer bonds was for lesser figure than contract price for construction of sewer, held contract invalid for want of adequate appropriation even though there were adequate funds in general corporate fund. *Collins* v. *Village of Glen Ellyn*, 158 N.E.2d 89 (Ill. App., April 29, 1959)

Elections—Candidate's Name Ordered Placed on Ballot

Where candidate for councilman was properly nominated and it appeared he was eligible to hold office yet city clerk refused to place his name on ballot on advice of city solicitor, held clerk compelled to place candidate's name on ballot. *State* v. *City of Wheeling*, 108 S.E.2d 788 (W. Va., May 12, 1959)

Elections—Independent Cannot Enter Primary

In action by person seeking to become candidate for city office as independent in primary election which was general city election but not general state election, held only members of political parties are eligible as candidates in such election. *Preisler* v. *City of St. Louis*, 322 S.W.2d 748 (Mo., March 5, 1959)

Highway—State May Build Without City's Approval

Where State Director of Highways declared necessity for relocating and improving certain highways including construction of new bridge over river wholly within city, which had refused to consent to improvement, held construction ordered. *City of Lakewood* v. *Thormyer*, 157 N.E.2d 431 (Ohio App., Cuyahoga Cty., April 16, 1959)

Special Assessments for Sewers Valid

In action to enjoin collection of certain storm sewer assessments where landowners had failed to appear and contest questions before local authorities, held they were not estopped to raise question of sufficiency of notice in subsequent proceedings. *City of Miami* v. *Lee*, 112 So.2d 24 (Fla. App., May 19, 1959)

Special Assessments—Method of Valuation Contested

In proceeding concerning special assessments by village to pay cost of curbing and grading streets, held benefit to property on frontage basis is properly considered in making assessment but it is not the only item for consideration. *Village of Morton Grove* v. *Gelchsheimer*, 158 N.E.2d 70 (Ill., March 20, 1959)

Streets—
Easement for Driveway Approved

In action concerning construction of driveway and sewer connection from lot across adjoining strip of land to public highway, held even owner of land abutting highway dedicated by adjoining owner entirely out of his own property has right of access to highway. *McCargo* v. *Evanson*, 149 A.2d 588 (Pa. Super. Ct., March 18, 1959)

Tort Liability—
Child Injured by Defective Fence

In action by five-year-old boy against Transit Authority for injuries sustained when defective iron fence along passageway fell on boy, held directed verdict for Authority reversed and remanded for jury consideration. *Lambert* v. *Metropolitan Transit Authority*, 157 N.E.2d 869 (Mass., April 23, 1959)

Top Ten Public Works Men-Of-The-Year

The names of the top Ten Public Works Men-Of-The-Year, announced last month by Frederick W. Crane, president of the American Public Works Association, includes six city engineering officials, one county engineer of an urbanized county, and three state and federal engineers.

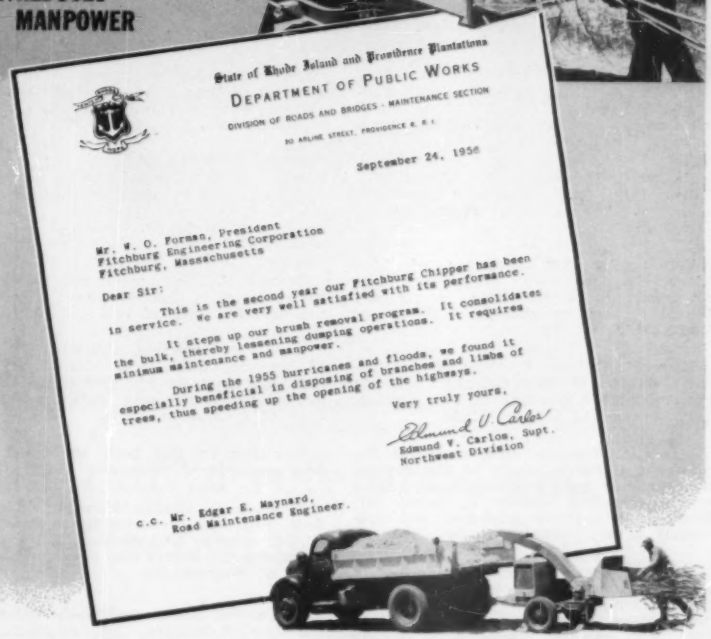
Those selected were: Samuel S. Baxter, commissioner and chief engineer, Water Department, Philadelphia, Pa.; David L. Erickson, director, Department of Public Works and Utilities, Lincoln, Neb.; Lloyd D. Knapp, commissioner, Department of Public Works, Milwaukee, Wis.; John A. Lambie, county engineer, Los Angeles County, Calif.; Roy W. Morse, city engineer, Seattle, Wash.; Rear Admiral Eugene J. Peltier, chief, Bureau of Yards and Docks, U. S. Navy, Washington, D. C.; Glenn C. Richards, commissioner, Department of Public Works, Detroit Michigan; Paul R. Screvane, commissioner, Department of Sanitation, New York, N. Y.; Bertram D. Tallamy, Federal Highway Administrator, U. S. Bureau of Public Roads, Washington, D. C., and Rex M. Whitton, chief engineer, Missouri State Highway Department Jefferson City, Mo. ◄◄

Fire Alarm In Public Favor

"Interest in fire alarms is booming," said W. Ben Flanigin, vice-president and general manager of the Gamewell Co., Newton Upper Falls, Mass., at the fire alarm session of the International Municipal Signal Association in New York on September 19. Evidence is spotted by large improvements in New York City, Attleboro, Tulsa, and many others. Memphis has a $1.5 million project; Portland, Ore., $600,000; master boxes for all schools in Chicago. "Increased interest is noted even over that of a year ago," said Mr. Flanigin, "in auxiliary fire alarm systems for public schools, nursing homes and hospitals, and also in police call boxes." ◄◄

FITCHBURG CHIPPER STEPS UP
Rhode Island Brush Removal

...CONSOLIDATES THE BULK
...LESSENS DUMPING OPERATIONS
...REQUIRES MINIMUM MAINTENANCE
...REDUCES MANPOWER



State of Rhode Island and Providence Plantations
DEPARTMENT OF PUBLIC WORKS
DIVISION OF ROADS AND BRIDGES - MAINTENANCE SECTION
80 ARLINE STREET, PROVIDENCE 6, R. I.

September 24, 1958

Mr. W. O. Forman, President
Fitchburg Engineering Corporation
Fitchburg, Massachusetts

Dear Sir:

This is the second year our Fitchburg Chipper has been in service. We are very well satisfied with its performance.

It steps up our brush removal program. It consolidates the bulk, thereby lessening dumping operations. It requires minimum maintenance and manpower.

During the 1955 hurricanes and floods, we found it especially beneficial in disposing of branches and limbs of trees, thus speeding up the opening of the highways.

Very truly yours,

Edmund V. Carlos
Edmund V. Carlos, Supt.
Northwest Division

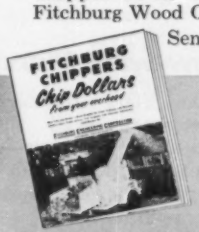
c.c. Mr. Edgar E. Maynard,
Road Maintenance Engineer.

Brush disposal cost can be reduced.

Your City will find that the Fitchburg Wood Chipper is money-saving equipment in your Highway or Park Departments. Tree trimmings are quickly reduced into load-saving wood chips. Fewer loads cuts your loading and hauling expenses. Brush removal becomes a faster, simpler, less expensive operation.

Fitchburg Wood Chippers are engineered to stand hard use, to give long service without excessive maintenance costs. There is only one Wood Chipper on the market today with a One Year Guarantee...The Fitchburg Wood Chipper.

Send for a copy of "Chip Dollars From Your Overhead."



NEW FREE BOOK
"Chip Dollars From Your Overhead"
Complete with cutaway color drawings of Chipper in action. Specifications, etc.

FITCHBURG ENGINEERING CORPORATION
Fitchburg, Massachusetts, Dept. AC-611

Send my free copy of "Chip Dollars From Your Overhead" to:

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(Position or Company)
Address _____
City _____ State _____

FITCHBURG ENGINEERING CORPORATION
FITCHBURG, MASSACHUSETTS

RECENT CITY MANAGER APPOINTMENTS

Fred J. Young, Baker, Ore. | *Lyle Linstrom, Valentine, Nebr.* | *Wm. D. Golightly, New Holland, Pa.* | *Geo. E. Smith, Colonial Hgts., Va.* | *W. E. Froehlich, Olivette, Mo.* | *Jay Gregg, Watsontown, Pa.*

J. JULIEN BAGET, manager of Ojai, Calif., has been appointed the first manager of Novato, Calif. Mr. Baget was previously city clerk and assistant manager of The Dalles, Ore.

HARRY C. BOND, planning director of Culver City, Calif., has been appointed manager of that city, succeeding M. Deane Seeger.

VICTOR BORTNICK, manager of Flat River, Mo., has been appointed Village Administrator of Herkimer, N. Y. Mr. Bortnick was previously manager of Moundsville, W. Va.

HUGH H. BOWERS, Director of Development Bureau of New Orleans, La., has been appointed manager of Port Lavaca, Tex., succeeding Milford Riggs.

MASON A. BUTCHER, director of the Department of Public Works of Montgomery Co., Md., has been appointed county manager, succeeding Melvin L. Reese. Mr. Butcher, who is an engineer, was previously acting county manager.

DAVID T. CLARK, formerly manager of South Burlington, Vt., was recently appointed manager of St. Johnsbury Town and Village, succeeding Charles A. Summer, who recently retired after serving that city for 26 years.

WILFRED E. FROEHLICH, manager of Avalon, Pa., has been appointed manager of Olivette, Mo., succeeding J. Eldon Mariott.

WILLIAM D. GOLIGHTLY, assistant manager of Clarksburg, W. Va., has been appointed manager of New Holland, Pa., succeeding Walter K. Smith.

JAY GREGG, manager of South Berwick, Me., has been appointed manager of Watsontown, Pa., succeeding J. G. Joseph. Mr. Gregg was previously council president of Grove City, Pa.

MILTON S. HETZEL, manager of Sebastopol, Calif., has been appointed manager of Campbell, Calif.

JOE LATIMORE, manager of Twin Falls, Idaho, for the past eight years, has been appointed manager of Reno, Nev., succeeding C. B. Kinnison.

LYLE LINSTROM, acting manager of Crete, Neb., has been appointed manager of Valentine, Neb., succeeding Richard D. Land. Mr. Linstrom was previously city clerk of Crete.

R. J. MCKENNA, manager of Murdochville, Quebec, Canada, for the past five years, was recently appointed the first manager of Baie d'Urfe, Quebec. Mr. McKenna was previously a construction superintendent.

HUGH MCKINLEY, manager of Grant's Pass., Ore., for the last four years, has been appointed manager of Eugene, Ore. Mr. McKinley was previously assistant manager of Corvallis, Ore., and manager of Sutherlin, Ore.

CHARLES F. MANN, administrative assistant of Rittman, Ohio, has been appointed the first manager of that city.

C. W. MASONHEIMER, assistant manager of Modesto, Calif., has been appointed the first manager of Watsonville, Calif. Mr. Masonheimer was previously manager of Pleasanton, Calif.

RAY MOBLEY has been appointed the first manager of Tennessee Ridge, Tenn.

STERLING C. MORRIS, manager of Camden, Me., has been appointed manager of St. Albans, Vt., succeeding John M. Simmons. Mr. Morris was previously manager of Warren, Me.

J. FRANCIS NEIDE, has been appointed manager of Newark, Del., succeeding J. J. Salovaara.

ERNEST L. NEUMANN, manager of Petoskey, Mich., has been appointed manager of Marquette, Mich. Mr. Neumann was previously manager at Manistee, Mich.

BERNARD C. OLSON, manager of Rockford, Mich., has been appointed first manager of Lowell, Mich.

LAWRENCE C. SAVAGE, JR., manager of Cheboygan, Mich., has been appointed the first manager of Grosse Pointe, Mich. Mr. Savage was previously personnel director of Saginaw, Mich.

W. E. SHERBURNE, former Ogunquit, Me., business man, has been appointed city manager of that city, replacing Percival H. Wardwell.

C. DEAN SMITH, manager of Sutherlin, Ore., has been appointed manager of The Dalles, Ore., succeeding Robert B. Laursen.

GEORGE E. SMITH, formerly an engineer with the highway department of Cook County, Ill., has been appointed manager of Colonial Heights, Va. Mr. Smith was previously manager of Western Springs, Ill.

JOHN L. TAYLOR, manager of Narberth Borough, Pa., for the past four years was recently appointed manager of Lakewood, N. J. Mr. Taylor was previously administrative assistant in Xenia, Ohio.

FRED J. YOUNG, previously manager of La Grande, Ore., has been appointed manager of Baker, Ore., succeeding Paul R. Revis. Mr. Young was formerly mayor of Baker.

STANLEY VAN DE PUTTE, acting manager of Glendale, Ariz., has been appointed manager of that city succeeding W. A. Gilchrist. Mr. Van de Putte was formerly chief of police of Glendale.

ORIN F. NOLTING
Executive Director
International City Managers' Association

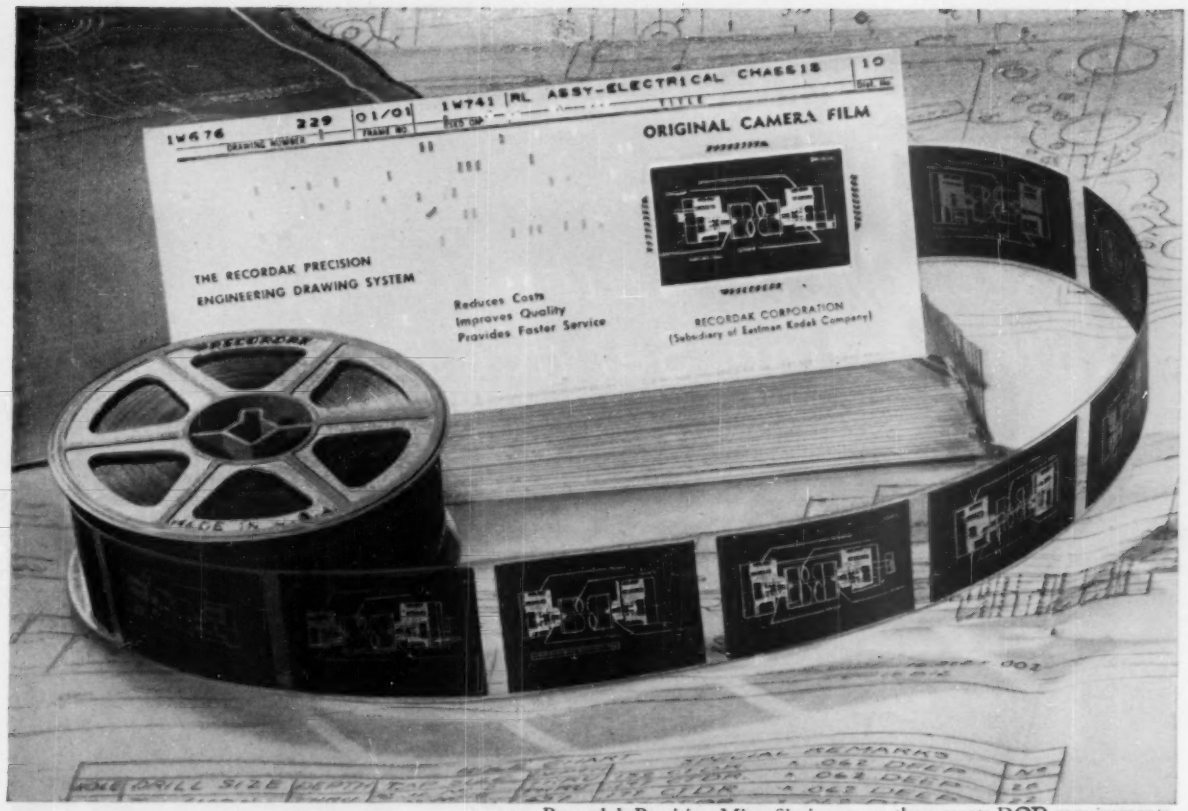
Cities Grow with Planning Commissions

The Colorado State Planning Division recently reviewed the figures collected about this state in the federal census and concluded that planning must be associated with healthy growth.

In this state 75.5% of the municipalities that are gaining population have planning commissions and 65% have zoning. In contrast, of those places that are losing population, 34.8% have planning commissions and 21.7% have zoning.

Similarly, of the 57% of the Colorado counties losing population, only 13.9% have planning commissions; of those counties gaining population, 70.2% have planning commissions.

The Colorado State Planning Division concludes that, while planning or zoning cannot assure a growing economy, there is a definite need for planning, particularly in declining areas, to determine reasons for decline. ◄◄



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Take the "wait" out of reference and printmaking with Recordak microfilming!

Needle-sharp Recordak microfilm images mounted on aperture cards are speeding routines and cutting costs in engineering departments large and small.

Complete active drawing files are at the fingertips in just 5% of the space needed for originals. Any drawing—out of thousands—found quickly and viewed clearly in a RECORDAK Film Reader.

This, naturally, reduces the need for reference blueprints, adds up to notable savings in time and printmaking costs. You can also count on savings when you need prints. For with this new system, reduced-scale paper prints can be made directly from your aperture cards by low-cost photographic, xerographic or electrostatic methods. Also, duplicate film cards for distribution can be made for pennies apiece.

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Free booklet gives facts on this RECORDAK Precision Engineering Drawing System available through Recordak and its nation-wide dealer organization. No obligation whatsoever.

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(Subsidiary of Eastman Kodak Company)

originator of modern microfilming
—now in its 33rd year

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415 Madison Ave., New York 17, N.Y.

Gentlemen: Send free booklet describing new RECORDAK Engineering Drawing System. No obligation whatsoever.

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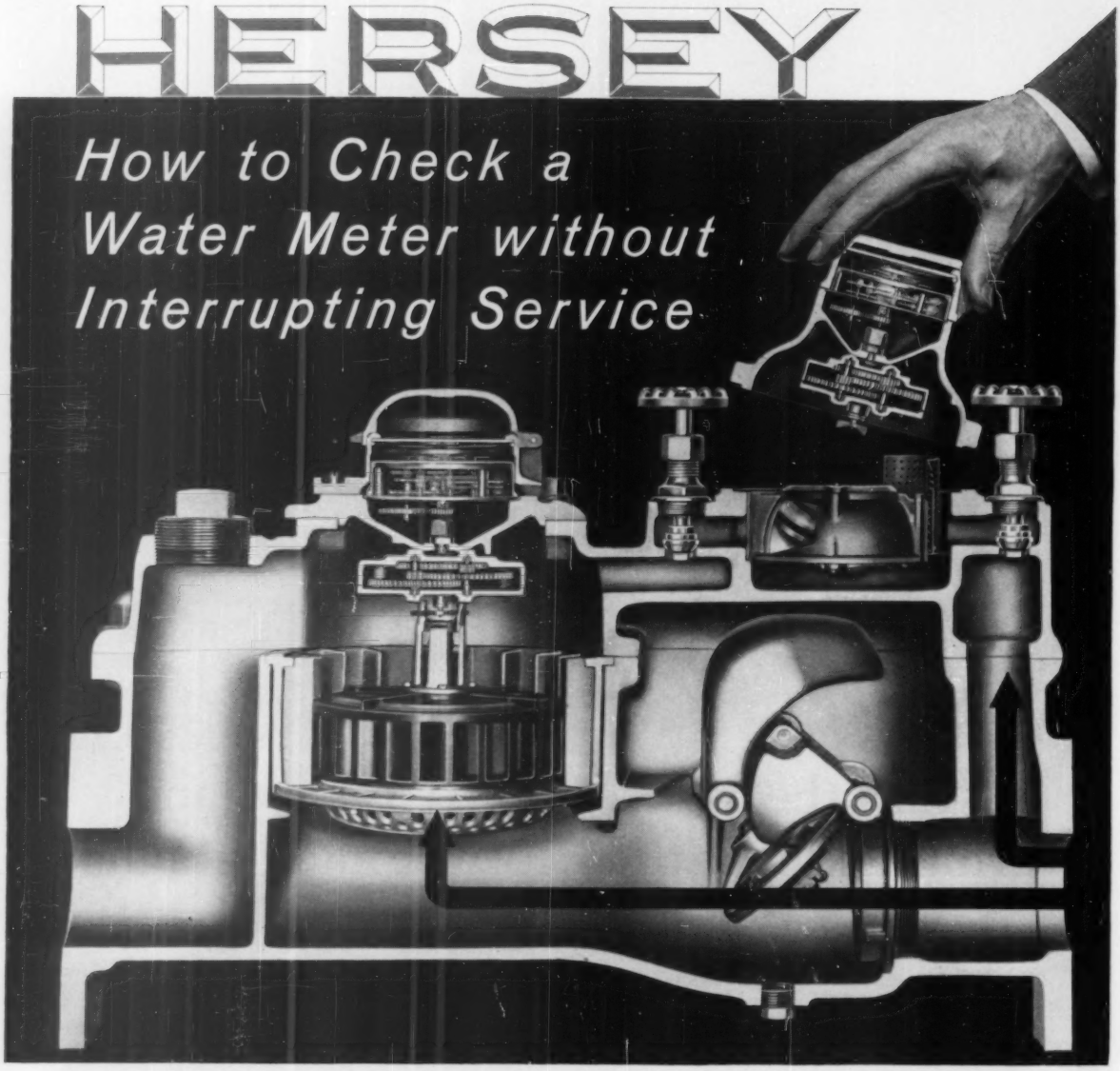
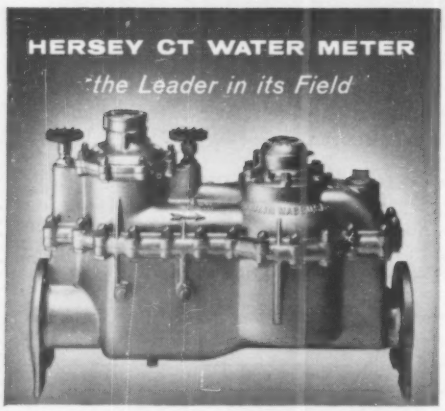
HERSEY

How to Check a Water Meter without Interrupting Service





4″ size shown above

That's a Hersey Compound Water Meter having its by-pass meter checked – *without shutting off the main line.* This is one reason these meters are the No. 1 choice when both large and small rates of flow are to be measured. Another reason is the high degree of accuracy obtained by using the extremely sensitive Hersey conical disc type meter on the by-pass.

A special feature of the Hersey Compound Meter is the exclusive swing type lever valve which diverts small flows through the by-pass but, when opened by a large demand, offers no resistance to the flow of water.

These meters are available in sizes from 2″ to 10″ inclusive (2″, 3″, 4″, 6″ all bronze cases–8″ and 10″ galvanized iron cases). Write for more facts.

Hersey-Sparling
Meter Company
HERSEY PRODUCTS
DEDHAM, MASSACHUSETTS

Branches: Atlanta, Boston, Chicago, Cleveland, Dallas, Denver, Kansas City, Mo., Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Seattle.

CONVENTIONS — WHEN AND WHERE

Conventions listed this month for the first time are indicated by an asterisk (*)

Nov. 9-11—Winston-Salem, N. C.

NORTH CAROLINA SEWAGE AND INDUSTRIAL WASTES ASSOC. Annual Meeting (R. E. Lee Hotel). Sec.-Treas. T. Z. Osborne, Rm. 309, Municipal Bldg., Greensboro, N. C.

Nov. 10-12—Sitka, Alaska

LEAGUE OF ALASKA CITIES. 10th Annual Convention (City Hall). Exec. Sec., Mrs. Lucy Mick, Box 1764, Palmer, Alaska.

Nov. 13-16—Phoenix, Ariz.

NATIONAL MUNICIPAL LEAGUE. Annual Meeting (Westward Ho Hotel). Exec. Dir., Alfred Willoughby, 47 East 68th St., New York 21, N. Y.

Nov. 13-16—Fort Lauderdale, Fla.

FLORIDA SEWAGE AND INDUSTRIAL WASTES ASSOC. Annual Meeting (Galt Ocean Mile Hotel.) Sec.-Treas., Arthur R. Finney, Jr., 4801 117th Ave., Miami 55, Fla.

Nov. 13-16—Fort Lauderdale, Fla.

AMERICAN WATER WORKS ASSOC.—Florida Section. Annual Meeting (Galt Ocean Mile Hotel). Exec.-Sec., J. G. Simmons, Box 1311, West Palm Beach, Fla.

Nov. 13-16—Salem, Oregon

LEAGUE OF OREGON CITIES. Annual Meeting (Marion Hotel). Exec. Sec., Herman Kehrli, P. O. Box 5177, Eugene, Ore.

Nov. 14-18—Stillwater, Okla.

OKLAHOMA WATER, SEWAGE AND INDUSTRIAL WASTES ASSOC. Annual Meeting (Okla. State University—Student Union). Sec.-Treas., H. M. Crane, 3400 N. Eastern, Oklahoma City, Okla.

Nov. 14-19—London, England

PUBLIC WORKS AND MUNICIPAL SERVICES CONGRESS AND EXHIBITION. Exhibition Organizers, The Municipal Agency Ltd., 70 Victoria Street, London S.W. 1, England.

Nov. 15-18—Atlantic City, N. J.

NEW JERSEY STATE LEAGUE OF MUNICIPALITIES. Annual Meeting (Chalfonte-Haddon Hall Hotel). Exec. Dir., Robert H. Fust, 603 Trenton Trust Bldg., Trenton, N. J.

Nov. 16-17—Indianapolis, Ind.

INDIANA SEWAGE AND INDUSTRIAL WASTES ASSOC. Annual Meeting (Hotel Washington). Sec.-Treas., Victor G. Wagner, State Dept. of Health, 1330 W. Michigan St., Indianapolis, Ind.

Nov. 16-18—Milwaukee, Wis.

LEAGUE OF WISCONSIN MUNICIPALITIES. Annual Meeting (Schroeder Hotel). Exec. Dir., Ed Johnson, 30 E. Johnson St., Madison, Wis.

Nov. 16-23—Tel Aviv, Israel

INTERNATIONAL UNION OF LOCAL AUTHORITIES. Annual Meeting. Sec. Gen., N. Arkema, 5 Paleisstraat, The Hague, Netherlands.

Nov. 26-30—New York, N. Y.

AMERICAN MUNICIPAL ASSOCIATION. Annual Meeting (Waldorf-Astoria Hotel). Exec. Dir., Patrick Healy, Jr., 1612 K Street, N.W. 6th Floor, Washington 6, D. C.

***Nov. 28-Dec. 2—Detroit, Mich.**

AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS. Annual Meeting (Sheraton-Cadillac Hotel). Exec. Sec., Alfred E. Johnson, 917 National Press Bldg., Washington 4, D. C.

***Dec. 5-8—Washington, D. C.**

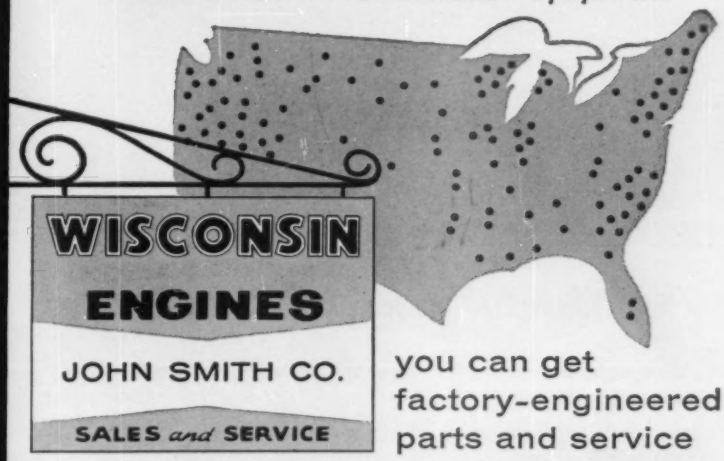
THE ASPHALT INSTITUTE. Annual Meeting (Sheraton-Park Hotel). Sec., Arvin S. Wellborn, The Asphalt Institute, College Park, Md.

***Dec. 12-14—Washington, D. C.**

NATIONAL CONFERENCE ON WATER POLLUTION. Information Officer Robert S. Hutchins, Room 4310, Health, Education and Welfare Building South, Washington 25, D. C.

(Continued on page 196)

ATTENTION on-the-move users of
WISCONSIN-POWERED *equipment*



you can get factory-engineered parts and service for **WISCONSIN ENGINES** *anywhere . . . at any time!*

You can't predict service emergencies. But you can take positive steps to minimize time loss and costs when one strikes. For no matter when or where the need arises, you are always near one of the 2000 Authorized Wisconsin Engine Service Stations for on-the-spot parts and service.

You can always count on prompt, professional service to restore your Wisconsin Engine to like-new condition *fast!* Your Wisconsin Engine is cared for by factory-trained trouble-shooting specialists. They use Wisconsin parts that are factory-engineered to original Wisconsin Engine specifications and quality. The result: better performance and longer life for your Wisconsin Engine and the equipment it powers.

You are protected even if you service your own, or if you rely on an independent repair shop or the original equipment dealer. Every Authorized Wisconsin Service Station can supply them with Wisconsin factory-engineered parts quickly.

Make it a point to specify Wisconsin factory-engineered parts — and service — for your Wisconsin-powered equipment. Send for complete Service Station Directory S-198, and for Service Bulletin S-261. Write Dept. U-10.

All Authorized Service Stations carry the full line of WISCONSIN PARTS:

pistons, piston rings and pins • valves and valve seat inserts • valve guides, locks, springs • connecting rods • gaskets and seals • oil filter elements • governor parts • spark plugs • magnetos • carburetors • fuel pumps • repair kits • cylinder heads • fuel tanks and many other parts.

WISCONSIN MOTOR CORPORATION
MILWAUKEE 46, WISCONSIN
World's Largest Builders of Heavy-Duty Air-Cooled Engines

C-182

The New 1960 Asplundh Chippers Are Best for Municipalities

Asplundh Chippers are rugged, absolutely safe, are engineered for continuous, trouble-free service. They chip faster than any other chipper in the world; are easily maintained, simple in design, require less labor and materials cost.

New 1960 features include:

- **new wedge locking bar assembly** for simpler, faster blade maintenance
- **replaceable floor plate,** eliminates need for housing disassembly
- **larger diameter cylinder journals** for a stronger chipping unit
- **removable cutter bar assembly** to facilitate service
- **optional blower unit** to preclude chute stoppage when chipping large volume of dense or wet foliage

DECIDE WITH THE FACTS . . . write for complete information . . . ask for names of users near you. Best of all, ask for a DEMONSTRATION WITHOUT OBLIGATION. What could be more conclusive?

Write today—

ASPLUNDH
CHIPPER COMPANY
501 York Road, Jenkintown, Pa.
TUrner 7-2500

Proven in service by the world's largest tree company

Conventions—When and Where

(Continued from page 195)

***Jan. 4-6, 1961—New York, N. Y.**
NORTHEASTERN WEED CONTROL CONFERENCE. Annual Meeting (Hotel New Yorker). Sec.-Treas., Dr. D. A. Schallock, Rutgers University, New Brunswick, N. J.

***Jan. 9-13, 1961—Washington, D. C.**
HIGHWAY RESEARCH BOARD. Annual Meeting (Sheraton-Park Hotel). Dir., Fred Burggraf, 2101 Constitution Ave., Washington 25, D. C.

***Jan. 19-20, 1961—New York, N. Y.**
NEW YORK SEWAGE & INDUSTRIAL WASTES Assoc. Annual Meeting (Park Sheraton Hotel). Exec.-Sec., R. C. Sweeney, New York State Health Dept., 55 Church St., White Plains, N. Y.

***Jan. 26-28, 1961—Berkeley, Calif.**
CALIFORNIA STREET & HIGHWAY CONFERENCE. Annual Meeting (Durant and Shattuck Hotels). Exec. Sec., Bob Glenn, ITTE, University of California, Berkeley, Calif.

June 4-9, 1961—Detroit, Mich.
AMERICAN WATER WORKS ASSOCIATION. Annual Convention (Cobo Hall). Sec., Raymond J. Faust, 2 Park Avenue, New York 16, N. Y.

***Sept. 24-27, 1961—Minneapolis, Minn.**
AMERICAN PUBLIC WORKS ASSOCIATION. Annual Meeting (Municipal Auditorium). Exec. Dir., Robert D. Bugher, 1313 East 60th Street, Chicago 37, Ill.

***Oct. 15-18, 1961—Milwaukee, Wisc.**
WATER POLLUTION CONTROL FEDERATION. Annual Meeting (Milwaukee Auditorium). Exec. Sec., Dr. Ralph E. Fuhrman, 4435 Wisconsin Ave., N.W., Washington, D. C.

Richmond Boosts Police "Dogpower"

The police of Richmond, Va., increased their manpower and dogpower during the past year.

Early this calendar year, City Council authorized the employment of 30 additional policemen, 29 patrolmen and one sergeant. That brought the authorized strength of the force up to 422.

With provisions for new manpower, there were provisions also for the purchase of new equipment—among it, four automobiles.

While Council was approving new men and new equipment, it approved also the expansion of the K-9 Corps.

The Corps is now up to 13 men—12 patrolmen and a sergeant—and 13 dogs. The dogs, after a vigorous 12-week training session at Bryan Park which began in May, are now on duty on the city's streets. ◄◄

serves many departments

A Model H-50 "PAYLOADER" of the City of Richmond, Va. is a much-used piece of equipment because it is called upon to serve the Sewage Treatment Division, the Street Sanitation Division and the Street Maintenance Division.

It is busy several hours every day near the big, modern sewage treatment plant mixing the sludge with earth and burying grit and other solids. The rest of the time it may be found anywhere in the city, handling dirt and materials for street maintenance, construction and repair operations. In the winter it plays an important part in snow clearing and removal work.

Uses Unlimited There's no limit to the usefulness and uses of a "PAYLOADER" every month of the year. It is one piece of equipment that pays its way all year 'round. There is also extra value in a "PAYLOADER" over any other tractor-shovel because more useful attachments — some of them exclusive — are available for it. Attachments you can add include: Drott 4-in-1 bucket; back hoe; pick-up sweeper; leaf loader; earth auger; vibratory soil compactor; side boom; rotary, "V" and blade snow plows.

"PAYLOADER" models are available for every size of highway, street, sanitary and park department. Your nearby Hough Distributor is ready to serve you.

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THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY - INTERNATIONAL HARVESTER COMPANY

HOUGH, PAYLOADER, PAYMOVER, PAYLOGGER, PAYLOMATIC and PAY are registered trademark names of The Frank G. Hough Co.

THE FRANK G. HOUGH CO., 710 Sunnyside Ave., Libertyville, Ill. 11-B-3

Send data on PAYLOADER units and the many attachments.

NAME
TITLE
GOVT'L UNIT
STREET
CITY STATE

The new incinerator at Whitemarsh. Note the neat compact lines of the building and the low stacks of the wet scrubbers which emit a plume of steam. Glace & Glace, Inc. were consulting engineers for the project.

new method lowers refuse disposal costs—gives communities

smoke-free, odorless, economical incineration

Communities across the country have experimented with various methods of refuse disposal. Their experiences amount to a test-in-actual-use of practically every approach to the problem. Today, backed by cost, convenience and long range land use considerations, many have gone to incineration as the best solution. This is especially true since a new type of incinerator now brings costs into line with most community budgets.

This new type of incinerator was adopted by Dravo Corporation after intensive research into the refuse and sludge disposal problems of communities of all sizes. The Dravo Incinerator provides almost completely automatic operation and reduces the number of operators required. It takes full advantage of the latest materials handling techniques to eliminate litter. It utilizes modern combustion principles to eliminate smoke and odor. Each part of the system has been selected for rugged construction and ability to contribute to overall efficiency. Two of the most important parts are the storage conveyor and the furnace.

Water-cooled furnace during construction. The cooling pipes can be seen between the courses of refractory brick. Oil burners are used for ignition only; no additional fuel is needed to support combustion of refuse.

THE STORAGE CONVEYOR. Trucks are dumped indoors so that trash will not be scattered around the area. Refuse falls through an opening in the floor directly into the conveyor hoppers. The hoppers oscillate mechanically, throwing the material forward. This action is self-scouring and refuse does not stick to the sides or bottom of the hopper.

The refuse empties into feeders which charge it into the furnace. Automatically operated on a controlled time cycle, the feeders lock a layer of refuse against the furnace gates. This maintains an effective seal, permitting good control of furnace draft.

THE WATER-COOLED FURNACE. The furnace is constructed of first quality fire brick in which water filled cooling pipes are embedded on 8-inch centers. The cooling pipes maintain furnace wall temperatures below the slagging point of the refuse ash. This construction permits intermittent operation without the need for a long cooling period. In addition, the walls are thinner, and refractory maintenance is reduced to a minimum. The higher combustion temperatures made possible by water cooling improves burning rate and eliminates noxious odors.

Partially loaded hopper. Walls and floor are kept clean by the oscillating action. The hoppers are mounted on air springs, which compensate automatically for the load in the conveyor.

The Dravo Incinerator is the economical solution to the problem of sanitary, convenient refuse disposal. For full information, write or call DRAVO CORPORATION, PITTSBURGH 22, PENNSYLVANIA.

DRAVO
CORPORATION

MUNICIPAL AND CIVIC PUBLICATIONS

Publications on these pages are available from the addresses indicated and are usually free unless a price is given.

Municipal Government

MUNICIPAL GOVERNMENT AND ADMINISTRATION IN AMERICA—*By Jewell Cass Phillips. The Macmillan Company, 60 Fifth Avenue, New York 11, N. Y.* 1960. 648 *pp.* $6.95.

The most important of today's problems in municipal government and administration are examined in this up-to-date textbook. It also presents feasible alternative solutions for these problems.

State Constitutions and Reapportionment

STATE CONSTITUTIONS: REAPPORTIONMENT—*By Gordon E. Baker, National Municipal League, 47 East 68th Street, New York 21, N. Y.* 1960. 70 *pp.* $2.

Reapportionment is the first in a series of ten studies resulting from a three-year State Constitutional Studies Project. It analyzes a topic of extreme interest to urban areas in every state whose legislatures are "rural-dominated." This would include all except possibly the two most recent. It is a well-documented analysis of the process of getting and keeping a really representative system. The booklet reviews some of the leading proposals and suggests improvements in state constitutions that will facilitate fair apportionment.

In-Service Training

A MANUAL FOR MUNICIPAL IN-SERVICE TRAINING—*International City Managers' Association, 1313 East 60th Street, Chicago 37, Ill.* 1960. 40 *pp.* $2.

Designed for administrative officials, this manual discusses the importance of training, the problems in organizing a training program, describes the training methods used, including the conference form, and shows how to evaluate the training and make it more effective. The breadth of the material presented is such that it will enable a city to choose the form best suited to its needs or make the program already in effect a more vital tool.

Municipal Bonding

CONSTRUCTION PUBLIC WORKS' CONTRACTORS' BONDS AND OTHERS; BULLETIN NO. 213—*Association of Washington Cities, University of Washington, 250 Smith Hall, Seattle 5, Wash.* 1960. 90 *pp.*

Do you need to know the latest technical and specialized information about bonds? Here is a book that discusses the various types of bonds and their use, and gives a variety of bond forms to be used as a guide in helping cities work out bonds to suit their particular needs. It will enable cities to find most suitable methods of protecting their own municipal corporation.

Urban Economics

THE TECHNIQUES OF URBAN ECONOMICS ANALYSIS—*By Ralph W. Pfouts, Chandler-Davis Publishing Co., Business Office, P. O. Box 36, West Trenton, N. J.* 1960. 410 *pp.* $5.

This brings together a wide range of recent articles dealing with urban economics. Several articles discuss the economic base theory, both pro and con. Some apply the input-output method of measuring and examining the structure of the urban economy, and others explore the multiplier theory as applied to urban economics.

Only in the past few years have economists turned their attention to the urban scene. This book helps fill a void and should stimulate greater interest in this area of economic research, thereby aiding city planners in studies leading to sounder urban economic growth.

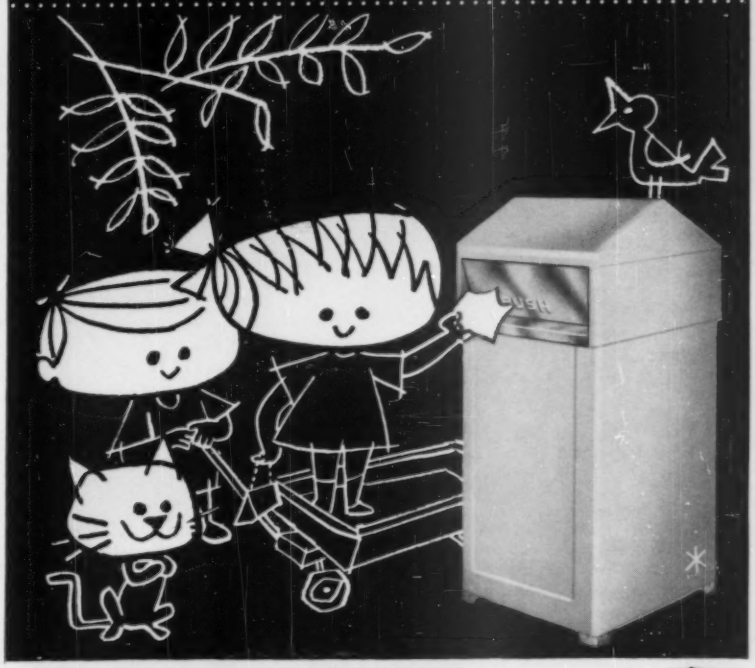
Zoning

THE TEXT OF A MODEL ZONING ORDINANCE—*With commentary by Fred H. Bair, Jr. and Ernest R. Bartley. American Society of Planning Officials, 1313 East 60th Street, Chicago 37, Ill.* 1960. 91 *pp.* $2.

This booklet is a revision of a publication put out in 1958 by the University of Florida's Public Administration Clearing Service. It embodies suggestions made by users of the first edition which will make

(Continued on page 200)

Cut Cleaning Costs...indoors and outdoors!



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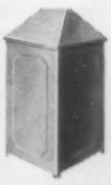

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(Continued from page 199)

it of greater value to medium and small-sized cities throughout the United States. The text is based on the standard State Zoning Enabling Act. It does not contain models of district regulations and is designed not to copy but to be used as a guide in preparing zoning legislation.

The Urban Region

METROPOLIS AND REGION—*By Otis Dudley Duncan, William Richard Scott, Stanley Lieberson, Beverly Davis Duncan and Hal H. Winsborough. John Hopkins Press, Homewood, Baltimore* 18, *Md.* 1960. 587 *pp.* $8.50.

Analyzing some of the leading ideas propounded about the nature of the metropolis and its role on the national scene, this book gives a comprehensive outline of the major structure of the metropolitan economy, showing the industrial and regional relationships in fifty-one metropolitan areas. This analysis of the structure of metropolitan centers provides a basis for measuring the various changes affecting our metropolitan centers.

Manager Interns

INTERNSHIP TRAINING FOR CITY MANAGEMENT—*By Robert L. Brunton and William E. Besuden. International City Managers' Association,* 1313 *East* 60*th Street, Chicago* 37, *Ill.* 1960. 20 *pp.* $1.

This is a report summarizing 25 years of International City Managers' Association experience in intern training for city management. It shows the growing importance of this type of training and provides guides for those cities who plan to establish such training.

Organizing Community Action

OUR COMMUNITY—*Edited by Dorothy and Curtis Mial. New York University Press, Washington Square, New York* 2, *N. Y.* 1960. 269 *pp.* $5.

Designed as a guide to organize community action, this book draws on a variety of methods used by communities throughout the country and organizes them into a surprisingly complete text for arousing, educating and channeling activity into constructive projects. This is a book city officials might well recommend to individuals or groups who want to be of service to their community.

Civil Defense

LIVE, INFORMATION BULLETIN No. 223 — *Office of Civil and Defense Mobilization, Battle Creek, Mich.* 1960. 69 *pp. Limited quantity free.*

This booklet was prepared by Stanford Research Institute, Menlo Park, Calif., as a manual to protect its staff and their families in case of atomic attack. It presents three plans for survival based on research studies conducted by the Institute for the Office of Civil and Defense Mobilization and the Army Signal Corps.

Pennsylvania Guide to Municipal Pension Law

A GUIDE TO PENNSYLVANIA MUNICIPAL RETIREMENT AND PENSION LAWS—*By David E. Kerr. Bureau of Municipal Affairs, Department of Internal Affairs, Harrisburg, Pa.* 1959. 73 *pp.*

This study replaces an earlier one titled "Retirement Systems for Borough Employees." In the years since this original study was made, national, state and local

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Director of Public Works, A. M. McKinnon, City of Mountain View, Calif., says, "We look for three things when we buy equipment. It must do the job quickly and efficiently. Operating and maintenance costs must be reasonable. It must be easy to operate. Our Austin-Western 8 to 12-ton tandem roller meets all three requirements.

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governments and private industry have increasingly provided financial security for their employees. Pennsylvania has likewise changed its laws governing retirement to such an extent that a new study of the subject was necessary. Because of the scope of these changes it expanded the study to include the retirement laws of all types of political subdivisions in the state.

City officials will find this study interesting and helpful in assessing or formulating programs of their own.

AIR POLLUTION

GENERAL — Air Pollution-Potential Advisory Service for Industrial Zoning Cases. By Milton Breivogel, S. Smith Griswold, Akira Hasegawa, James R. Taylor. Air Pollution Control District, 434 South San Pedro St., Los Angeles 13, Calif. 1960. 33pp.

CHARLESTON, S. C. — Air Pollution in Charleston. Technical Report A60-6. Librarian, Robert A. Taft Sanitary Engineering Center, 4676 Columbia Pkwy., Cincinnati 26, Ohio. 1960. 26pp.

SAN FRANCISCO, CALIF.—Regulations Pertaining to the Control of Air Pollution. Bay Area Air Pollution Control District, 1480 Mission St., San Francisco, Calif. 1960. 51 pp. $1.

ANNUAL REPORTS WORTH READING

CHICAGO METROPOLITAN AREA, ILL.—Annual Report 1959. Northeastern Illinois Metropolitan Area Planning Commission, 140 South Dearborn Street, Chicago 3, Ill. 1960. 29 pp.

DURHAM, N. C.—This is Durham, Annual Report, 1960. City Hall, Durham, N. C. 1960. 8 pp. Published in newspaper style.

HONOLULU, HAWAII — Annual Report of the Department of Public Works for the City and County of Honolulu. Office of the Chief Engineer, Honolulu City-County Office Bldg., Honolulu, Hawaii. 1960. 116 pp.

JACKSON COUNTY, MO.—Park Department Report for 1959. Office of the Director, Jackson County Park Department, 202 Court House, Kansas City 6, Mo. 1960. 12 pp.

KANSAS CITY, KAN.—1959 Annual Report. Board of Public Utilities, Department of Water, Light and Power, Municipal Building, Kansas City, Kan. 1960. 21 pp.

KENOSHA, WIS.—Annual Report of the Water Department and Sewage Treatment Plant. Office of the Manager, Water Department, City Hall, Kenosha, Wis. 1960. 58 pp.

MILTON, MASS.—One Hundred Twenty-Third Annual Report, 1959. Office of the Town Clerk, Town Hall, Milton, Mass. 1960. 374 pp. An almanac-style report of a local government using a modified form of the town meeting.

SAN FRANCISCO, CALIF.—Annual Report of the Department of Public Works, City and County of San Francisco. Department of Public Works, 260 City Hall, San Francisco 2, Calif. 1959. 37 pp.

(Continued on page 203)

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sliding or screw type cast iron valve boxes for covering 4" thru 10" valves for water or gas. Rugged construction for lifetime service. 5¼" shaft. Extensions as required.
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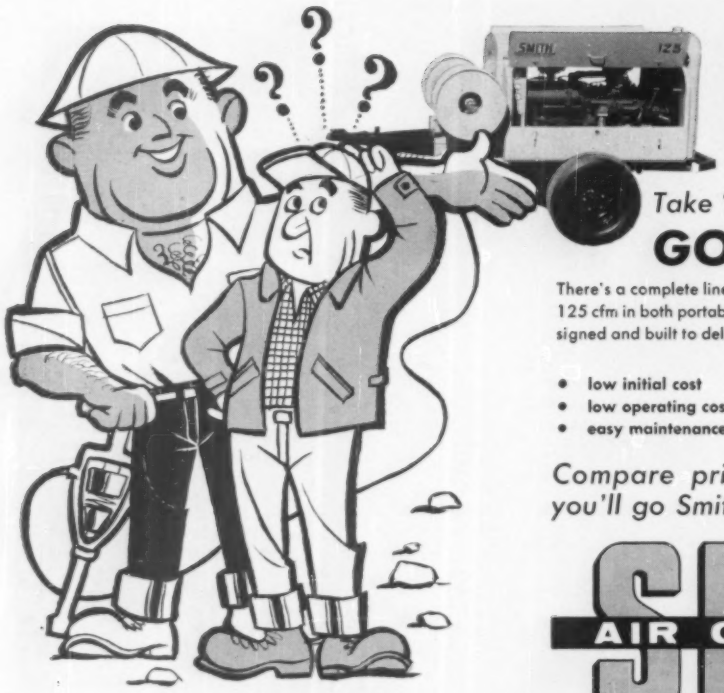

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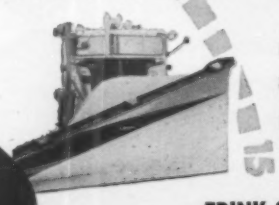

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(Continued from page 201)

BUILDING CODES

COVINA, CALIF. — Covina Home Building Requirements (for homeowners). City of Covina, 125 East College St., Covina, Calif. 1960. 14 pp.

FINANCE AND TAXATION

NEW YORK, N. Y.—How Tax Exemption Broke the Housing Deadlock in New York City. 186 pp. Tax Policies and Urban Renewal in New York City. 40 pp. Citizens' Housing and Planning Council of New York, Inc., Wilkie Memorial Bldg., 20 West 40th St., New York 18, N. Y. 1960.

VIRGINIA—Tax Rates in Virginia Cities. By Walter Stoneham. Report No. 15. League of Virginia Municipalities, 29 Rotunda, University of Virginia, Charlottesville, Va. 1960. 24 pp.

WEST VIRGINIA — Municipal and County Budgets in West Virginia 1958-1960. Publ. No. 27. By Claude J. Davis, Eugene R. Elkins, Paul E. Kidd. Bureau for Government Research, West Virginia University, Morgantown, W. Va. 1960. 33 pp.

MISCELLANEOUS

LANSING, MICH.—Economic and Population Base Study of the Lansing Tri-County Area. An Inter-industry Relations Analysis. Bureau of Business and Economic Research, College of Business and Public Service, Michigan State University, East Lansing, Mich. 1960. 319 pp.

NEW YORK—Metropolitan Action—A Six-County Inventory of Practical Programs. New York State Joint Legislative Committee on Metropolitan Areas Study, Eighth Floor, Onondaga County Savings Bank Bldg., Syracuse 2, N. Y. 1960. 141 pp.

PLANNING, ZONING, HOUSING

MINNEAPOLIS-ST. PAUL, MINN. — Guide to Subdivision Control. Twin Cities Metropolitan Planning Commission, Griggs-Midway Bldg., University at Fairview, Saint Paul 4, Minn. 1960. 17 pp. $1.

NEW YORK—New York State Division of Housing Statistical Summary of Programs. New York Division of Housing, 270 Broadway, New York 7, N. Y. 1960. 37 pp.

OAKLAND, CALIF.—Medical Center Hill. City Planning Department, City Hall, Oakland 12, Calif. 1959. 72 pp. $1.50.

RIVERHEAD, N. Y.—Town of Riverhead Survey and Analysis. New York Division of Housing, 270 Broadway, New York 7, N. Y. 1960. 54 pp.

SANTA CLARA COUNTY, CALIF.—A General Plan for Santa Clara County. County of Santa Clara, Planning Department, Santa Clara, Calif. 1960. 16 pp.

TELFORD, PA.—A Comprehensive Plan For Telford, Pa. Montgomery County Planning Commission, Court House, Norristown, Pa. 1959. 128 pp. $1.

TREDDYFFRIN TOWNSHIP, PA.—Preservation of Open Space in Suburban Municipalities. Government Consulting Service, Fels Institute of Local and State Government, University of Pennsylvania, 38th & Walnut Sts., Philadelphia 6, Pa. 1959. 10 pp.

WAYNE TOWNSHIP, N. J. — Master Plan, Township of Wayne, N. J. Wayne Township Planning Board, Township of Wayne, N. J. 1960. 30 pp.

URBAN RENEWAL

EAST CHICAGO, IND.—Here's the Picture of Indiana Harbor's Urban Renewal Project No. 1. East Chicago Redevelopment Commission, First National Bank Bldg., 3701 Main St., East Chicago, Ind. 1959. 16 pp. 50 cents.

NEWPORT NEWS, VA.—Next Steps for Newport News. Newport News Redevelopment and Housing Authority, P. O. Box 77, Newport News, Va. 1960. 20 pp.

REPRESENTATIVE MUNICIPAL BOND ISSUES

From September 6th to October 4th, 1960

Date of Issue	*Locality*	*Amount in 1000*	*Purpose*	*Term Yrs. to Maturity*	*Rate of Int.*	*Yield %*
9/ 6/60	Sherbrooke, Que.	1,141	Aqueduct and Sewer	....	5.00	5.43
9/ 7/60	Elyria, Ohio	1,840	Sanitary Sewer System	14½	3.50	3.48
9/ 7/60	Huntington, N. Y.	1,300	Gen. Obl. Pub. Imp.	11⅙	3.40	3.35
9/13/60	Allegheny Co., Pa.	5,400	General Obligation	12½	3.38	3.29
9/13/60	Dedham, Mass.	1,126	Incinerator, Sewer, Other	10	3.10	3.00
9/14/60	Beau-Comeau, Que.	1,269	Town Improvement	....	5.00	5.49
9/15/60	Suffolk Co., N. Y.	3,551	Improvement	11⅝	3.30	3.29
9/19/60	Kenosha, Wis	4,120	Corporate Purpose	8¾	3.40	3.28
9/20/60	Springfield, Mass.	3,750	Sewer, Street, Water, Parking	8½	2.90	2.81
9/20/60	Youngstown, Ohio	6,000	Arterial Highway System	14	3.50	3.49
9/21/60	Springfield, Mass.	1,000	Tax Anticipation	½	.79	.79
9/22/60	Buffalo, N. Y.	10,500	General Improvement	6½	2.80	2.77
9/26/60	East Orange, N. J.	1,174	General Improvement	8⅓	3.10	3.02
9/27/60	Wallingford, Conn.	1,150	Sewer	10¼	3.25	3.22
9/28/60	Topeka, Kans.	1,195	Sewer, Street, Park	5½	2.75	2.72
9/29/60	Cleveland Heights, Ohio	1,000	Sewer	8¾	3.00	2.99
9/29/60	Fairbanks, Alaska	1,500	Gen. Obl. Var. Purpose	....	....	4.21
9/29/60	Plaquemines Par., La.	2,500	Public Improvement	10½	3.70	3.67
10/ 4/60	Linden, N. J.	3,834	Various Gen. Obl.	12¾	3.38	3.37
10/ 4/60	Summit Co., Ohio	1,800	Airport Improvement	11½	3.50	3.43

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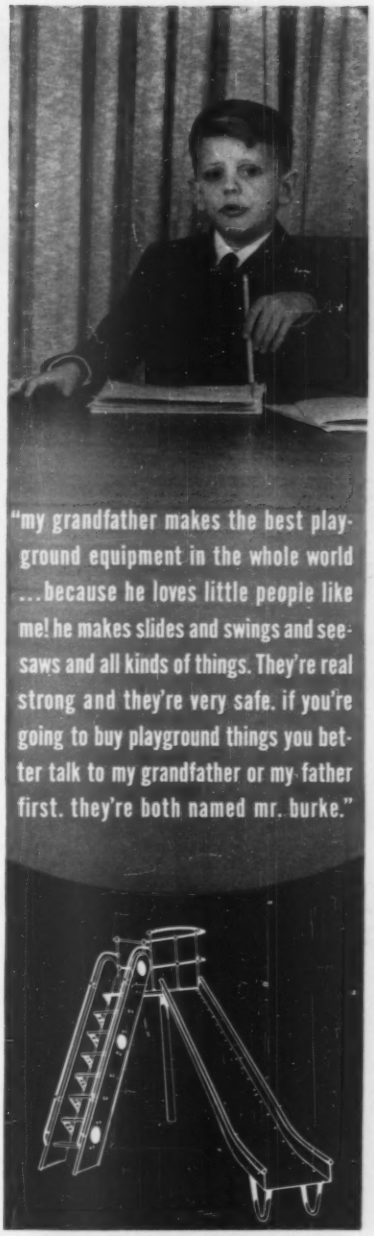
"my grandfather makes the best playground equipment in the whole world ...because he loves little people like me! he makes slides and swings and seesaws and all kinds of things. They're real strong and they're very safe. if you're going to buy playground things you better talk to my grandfather or my father first. they're both named mr. burke."

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This type of versatility is just another reason that the Dumpmaster is your best buy in mechanized refuse collection.

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This light duty pickup which is one of the 1961 model Chevrolet Corvair 95 trucks has a unique, swing-down, side-loading ramp.

The Chevrolet "Corvair 95" series of short wheelbase, rear powered, light duty trucks gives a maximum cargo space and load capacity in relation to overall dimension and weight. They are also highly maneuverable having a 95-inch wheelbase and a 15-foot overall length.

The series is comprised of a panel delivery and two pickup models.

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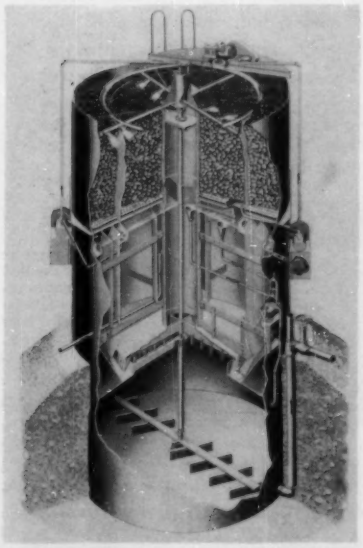

A cross section of the plant is shown here. In this system the primary settling tank removes 50% of the suspended solids and 35% of the 5 day B.O.D. The sewage then is pumped to two bio-filters operating in series where aerobic bacteria remove 85% to 95% of the raw sewage solids and B.O.D. to produce a stable effluent after passing through the secondary settling compartment.

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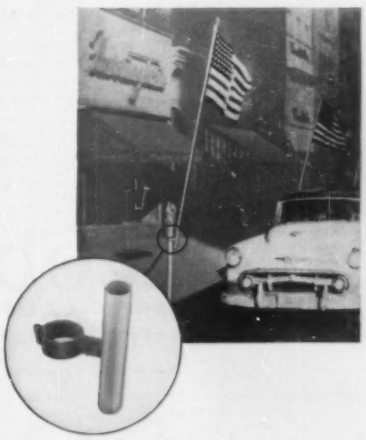
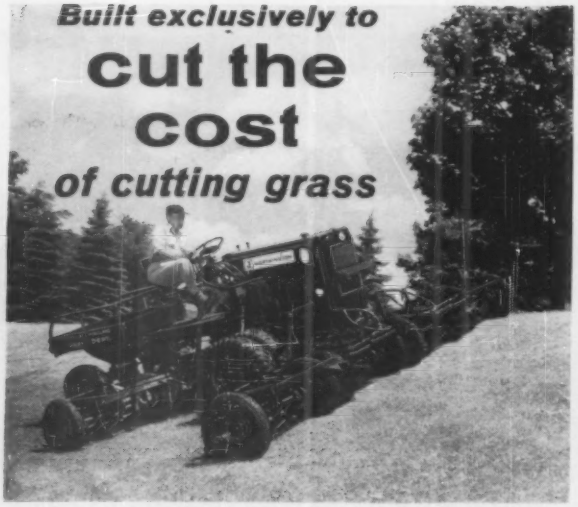
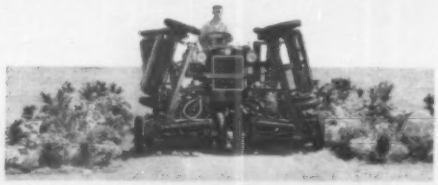


A folder outlines a program showing when the American flag should be displayed.

For complete information, contact NEEDS CORPORATION, DEPT. FB, 255 W. EUCLID AVE., JACKSON, MICH.



Worthington MODEL F TRACTOR
with 7 Gang Wing-Lift Mowers



The Worthington Model F tractor is made specially and exclusively for mowing and is the only tractor of its kind with out-front cutting units.

- All mowers operate *ahead* of all wheels for cleaner, smoother cut, with no wheel marks.
- Safe and efficient—operator can see all units forward.
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- It accommodates 3, 5 and 7 gang mowing units. Individual hydraulic unit lift provides flexibility for wide area or close quarter operation, fast transport.

These are but a few of the outstanding features of the Model F that help cut the cost of cutting grass. Call your dealer and make a date to demonstrate.

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Please send me the following:
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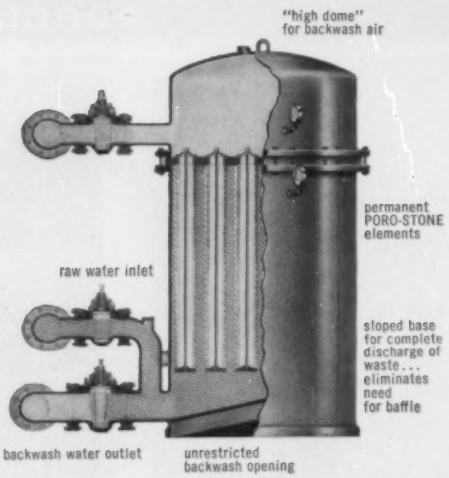
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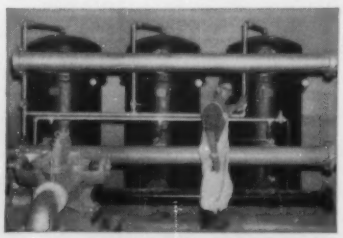


This Adams plant at Peru, N. Y., installed for emergency service, proved so satisfactory that it is now used continuously, year-round.

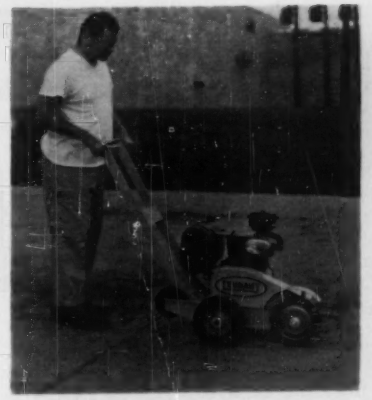
R. P. ADAMS CO., INC.
232 EAST PARK DRIVE • BUFFALO 17, NEW YORK

New Machine Sweeps Joints

A new, compact 7 hp machine for rapid removal of loose cement, dust, dirt and debris from pavement joints prior to resealing has been developed by the G. H. Tennant Co., 721 N. Lilac Dr., Minneapolis 22, Minn.

The new joint-sweeper, Model JS, sweeps joints ¾ to 2¼-inches wide and cleans regular joints or winding cracks to a maximum depth of 1½-inches. Designed chiefly for use after joint-plowing, routing or scraping operations on highways, streets, or airports, it reportedly provides a clean, sharp surface free of loose debris which will bond well with joint-sealing compounds, seals, and fillers.

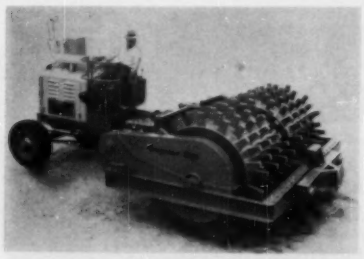
Powerful sweeping action is provided by 24 gauge steel tempered and twisted to form a brush that



rotates at 1800 rpm. As the 9½-inch diameter brush revolves it throws loosened dirt and debris forward away from the operator.

Self-Propelled Tamping Roller

This moderately-priced unit is now available. It is said to be able to do more work than the heaviest conventional double-drum rollers



pulled by large track-laying tractors, it eliminates high track maintenance, and saves 20%-25% in time and costs consumed in turning.

The Ferguson Model SP-120 comes equipped with two 5'x5' drums, wedge-type feet, a General Motors 4-71, 125-hp diesel engine, and an Allison 3-speed transmission and torque converter, which provides speeds of about 2, 4 and 8 mph, both forward and reverse. It features powerful air brakes and both hydraulic and air controls are conveniently located at the operator's position.

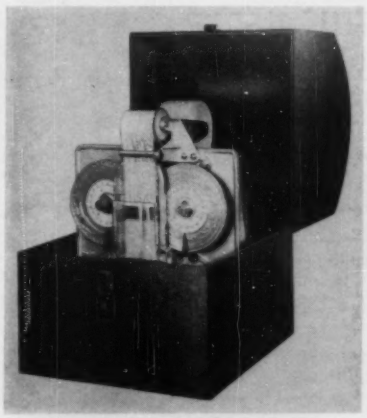
When empty, the SP-120 roller exerts a bearing pressure of 372 pounds psi; ballasted with water, a pressure of 550 psi. Municipalities will find this self-propelled unit suitable for all types of heavy compaction.

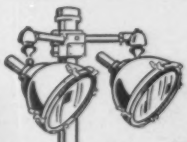
Write to Shovel Supply Co., 4900 Hines Blvd., Dallas, Tex.

Traffic Recorder →

"Traffic Operation Punch" maintains a running total of traffic, and records the total on a binary coded paper tape every 15, 30, or 60 minutes. The recorder accepts signals from any type of detecting element, such as a treadle, pneumatic tube, radar, electric eye, or sonic detector. Although the recorder is designed for traffic surveys, it can record signals from any two wire contact. The unit is capable of recording 30 counts per second.

For details, write Fischer & Porter Co., 552 Jacksonville Rd., Warminster, Pa.





· For LOW-COST OUTDOOR LIGHTING!
the Original
HOPE
MALLEABLE IRON METAL-PIPE POLE BASE

A Rugged Support for Threaded Pipe Uprights With Chamber for Splicing and Grounding.

Turn galvanized pipe into threaded hub of galvanized base. Top off with fixture. Install over embedded anchor bolts and conduit stubs. Splice and ground through hand-hole. Four sizes: 2", 2½", 3", 4". Plain or 3-pole receptacle cover. Bulletin #25.

CONSULT YOUR ELECTRICAL WHOLESALERS OR PHONE ONE OF OUR AGENTS BELOW!

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Colo.	Denver	AComa 2-8001
Fla.	Jacksonville	RAymond 5-3671
Fla.	Miami	PLaza 7-1041
Ga.	Atlanta	TRinity 5-4848
Ill.	Chicago	FRanklin 2-9854
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N. Y.	Williamsville	PLaza 4592
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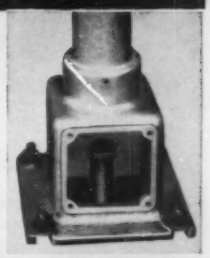
Wash.	Bellevue	GLencourt 4-0566
Wis.	Milwaukee	UPtown 1-4900



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HOPE ELECTRICAL PRODUCTS CO.

53 Long Ave., Hillside, N. J., ELizabeth 4-7837

Fast, Low-Cost Ice Control

You control ice and snow **Faster** and **Cheaper** with straight de-icing salts. The TARCO "Scotchman" is **the only spreader especially designed** for the correct application of these materials.

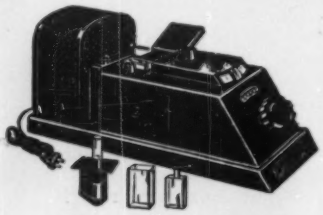
This "Jeep" mounted "Scotchman" uses the **1 cu. yd. Watchman Hopper.** Here's enough material to cover more than **5 miles of pavement, 30 feet wide.** One man operation. Use the **job-proven** "Scotchman" on any of your trucks: dump body, pick up, stake body or "Jeep".

Watchman Hopper, all gravity feed, is available in 3 cu. yd. capacity for dump body use. Remember: when it comes to snow and ice control, **Nothing Saves Like a "Scotchman".**

TARRANT MFG. CO.
23 Jumel Pl., Saratoga Springs, N. Y.

KLETT SUMMERSON
ELECTRIC PHOTOMETER

Adaptable for Use in Water Analysis



Can be used for any determination in which color or turbidity can be developed in proportion to substance to be determined.

KLETT MANUFACTURING CO.
179 East 87th Street, New York, N. Y.

LOWEST COST PIPE INSTALLATION

BY USING

HYDRAUGER*

*EARTH BORING TOOL

Reg. U.S. Pat. Office

OPEN HOLE

- UNDER STREETS
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HYDRAUGER—

- ELIMINATES TRENCHING
- REDUCES COSTS UP TO 90%
- BORE—UP TO 250 FT. 2 INCH TO 24 INCH
- NO FUMES OR SHOCKS

Write for booklet—

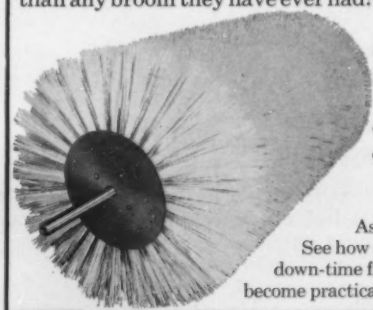
HYDRAUGER CORP., Ltd., 681 Market St., San Fran. 5, Calif.

Please send without obligation, to me, the HYDRAUGER BOOKLET which shows relative costs and speeds of BORING as well as specifications of various Hydrauger models.

NAME_____
ADDRESS_____
CITY_____
STATE_____

Well I'll be d.....!

Everyone's remark when they see the startling RADAX Broom Coil demonstration. Never before anything like it—for low price—for speed—for long life and—users say it sweeps better than any broom they have ever had!



- **NO CORES TO BUY**
- **LONG WEARING Plastic Filament**
- **PRE-FABRICATED**
- **"JET-SPEED" FILLING** 5 minutes or less for a new refill—READY TO GO!

Ask for a demonstration. See how and why your sweeper down-time for broom renewals will become practically nil.

PRICES DELIVERED TO YOUR SHOP

SWEEPER MAKE and MODEL	SR FILAMENT	TYNEX NYLON
MOBILE 54" BROOM	$195.85	$293.15
MOBILE 58" BROOM	$208.30	$310.60
WAYNE 450, 460, 520 and 550	$169.75	$252.50
ELGIN STREET KING	$258.20	$388.10
ELGIN WHITE WING	$258.20	$388.10
ELGIN 20, 30, and 81	$270.15	$399.95
AUSTIN-WESTERN 40	$208.15	$303.55
AUSTIN-WESTERN 60	$230.75	$333.20

RYNAL CORPORATION
114 ST. JOSEPH ST. • ARCADIA • CALIFORNIA

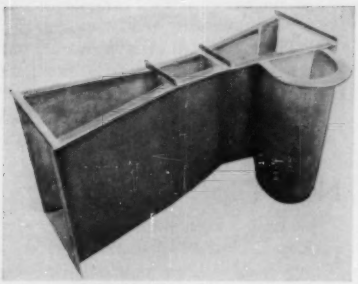
Small Plastic Parshall Flumes

New Parshall flumes, built of corrosion resistant fiberglas reinforced polyester by PLASTI-FAB, P. O. Box 5941, PORTLAND 22, ORE., are now in operation measuring flows of municipal and industrial sewage.

These new flumes have throat sizes of 3-, 6-, 9- and 12-inches and are available with or without integral float wells and molded-in level gage. Plasti-Fab lists as principal advantages, their light, easy installation and tough, durable construction. The 3-inch size weighs approximately 15 pounds.

This flume can measure the flow of corrosive industrial wastes that will destroy concrete. The flumes are self-supporting and do not require strengthening with concrete.

On some municipal installations, small flumes have been installed to measure sewage from specified districts with an eye to future growth. When a larger flume is required, the small unit may be removed and a larger one installed. In other cases, small flumes have been installed inside existing oversize flumes awaiting flow increase.



New plastic Parshall flumes such as this are measuring flows of municipal and industrial sewage.

Frink Makes Fast Rebound from Disastrous Fire

Frink Sno-Plows, Inc., Clayton, N. Y., hit by a costly fire this September, made an inspiring recovery, enabling it to meet all current and anticipated orders for the 1960-61 season.

Mr. George W. Kenyon, president of the company reported early last month that full production and service was substantially resumed. He stated further that full shipment of service parts was resumed two days after the fire and installations on customers equipment were started one week after the fire.

New Posts—Sales Setup

The organization of six construction machinery sales regions and the creation of a position of general products manager with the CONSTRUCTION MACHINERY DIVISION of ALLIS-CHALMERS MANUFACTURING COMPANY was announced. The new sales regions were established to bring a closer relationship between customers, dealers and the company.

H. T. Larmore

As part of the organizational change, H. T. Larmore has been appointed to the new post of general products manager. He will coordinate the sales activities with engineering and manufacturing of construction machinery produced at the firm's Springfield and Deerfield, Ill., and Cedar Rapids, Iowa plants. Prior to his new appointment, Mr. Larmore was sales manager for crawler tractors and motor graders.

Managers of the six sales regions are: J. M. Haile, Northwest region, which includes Portland, Ore. and Minneapolis, Minn., branches; G. E. Hall, Eastern Region, which includes Richmond, Va., and Columbus, Ohio branches; A. L. Lowery, Central region, which includes St. Louis, Mo. and Dallas, Texas branches; L. D. Myers, Southern region which includes Atlanta, Ga. and Memphis, Tenn. branches; K. A. New, Northeast region, which includes Harrisburg, Pa. and Syracuse, N. Y. branches; J. T. Skinner, Western region, which includes Denver, Colo. and Oakland, Calif. branches.

Mr. Larmore and the six regional managers will have their offices in Milwaukee.

for durability

economy . . .

. . . flexibility

use GUNITE!

- DAMS
- RESERVOIRS
- TUNNELS
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estimates, specifications and surveys made free of cost to you. write, wire or call MElrose 4-8120

INDIANA GUNITE & CONSTRUCTION CO., INC.

ENGINEERING—CONSTRUCTION

223 N. Alabama St. • Indianapolis, Ind.

Indiana Gunite & Construction Co., Inc.
223 N. Alabama St. • Indianapolis, Ind.

Gentlemen: Please have a representative contact me. I am interested in:

Description: .....

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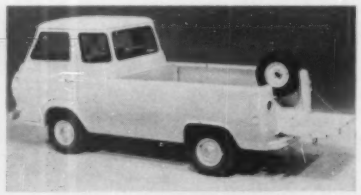
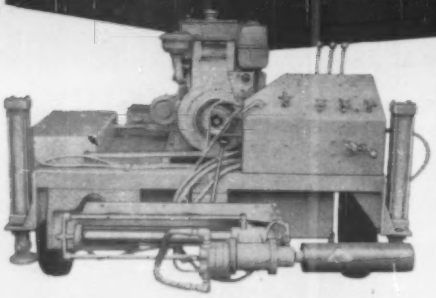
CITY ..... STATE .....

New Economy Pickup



This pick up model of Ford's new Econoline series is powered by a modified 85-horsepower Falcon engine mounted forward beside the driver's seat. This new low-cost commercial vehicle providess ample pass-through access in the front and flat cargo areas with low 25-inch loading heights in the rear. It weighs only 2,389 pounds and has a 73-cubic-foot volume in the box, and can carry payloads up to nearly 1,700 pounds. A van and passenger Station Bus model also is included in the Econoline series. For details write FORD DIVISION OF FORD MOTOR CO., P. O. BOX 608, DEARBORN, MICH.

specify **MOBILE**
hydraulic powered DRILLS
for *speed, power, economy...*



MOBILE DRILL

MARK V

It's the only diamond coring machine designed and built specifically for *production-type* concrete test coring on highways, aircraft runways and other slab-type masonry structures. Also available without custom-built trailer for mounting on ¾ ton utility truck.

MOBILE DRILL

DIGGER

Production type earth auger bores holes for utility poles, guard rails and similar installations with lightning speed.

MOBILE DRILL **B-40 EXPLORER**

Lightweight B-40 core drills to 250′ and augers to 100′. It's a natural for diversified soils exploratory work and all-round utility.

MOBILE DRILL **MARK IV**

Diamond masonry drilling machine has exclusive *automatic hydraulic feed.* It's lightweight, portable, easy to use.

Mobile offers a complete line of hydraulic rotary drilling machines, soil sampling equipment, diamond masonry coring machines, diamond bits, drilling tools and equipment.

MOBILE DRILLING, Inc.
960 N. Pennsylvania Street • Dept. 10
Indianapolis 4, Indiana

Bright Warning Flashes For City Streets

An efficient, transistorized highway safety light suitable for mounting in saw horses and barricades is now available from the Fisher-Pierce Co. The Safe-T-Flash produces precisely-timed flashes through a 7-inch amber colored plastic lens designed for maximum brilliance. It operates continuously at a choice of two flash rates and flash durations.

The lens and battery case will not shatter or crack under normal use. The unit is not affected by the weather. The lamp and sealed-in transistor circuit are included in the shock-and vibration-resistant Flash-Pak, which is easily attached to a 6-volt battery. Battery and lamp changes are easily made.

For complete details write FISHER-PIERCE CO., 170 PEARL STREET, SO. BAINTREE 85, MASSACHUSETTS.

New Pipe Locator

A new transistorized low-frequency tuned circuit tracer for locating pipe which uses "tuned-circuits" in transmitter and receiver cancels out signal-killing interference from power lines and other sources. Made by SHARPE INSTRUMENTS, 6080 YONGE ST., WILLOWDALE, ONTARIO, CANADA, the device maintains signal strength in the phones at a high level—even miles from the transmission point.

The new Sharpe transistorized, low frequency tracer for locating pipe may be worn in a pocket or as here, on a belt.

It may be carried in a shirt pocket, is fast in operation, easy to carry and battery drain is very low.

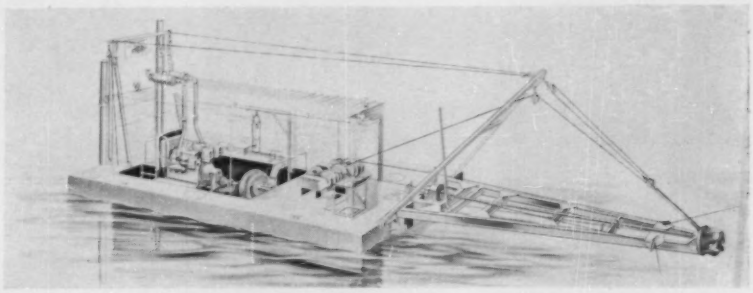
The receiver's field coil "stop-locks" in three positions: 90° (vertical) for pinpoint tracing or locating with a sharp audio null within 3-inches on each side of the buried pipe; 45° lock for depth determinations by simple triangulation; 180° (parallel to ground) for locating without tracing several miles from the transmitter source.

Portable Dredges

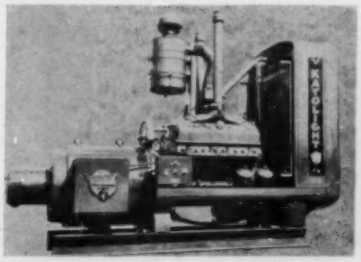
A series of design refinements has been standardized into the "Dragon" model portable dredges which make it the most advanced dredge in its class, according to an announcement made by officials of ELLICOTT MACHINE CORP., BALTIMORE, MD.

Introduced to meet the need for greater mobility and versatility, the dredge line has undergone rigid on-the-job testing for nearly ten years around the world on road construction, land reclamation, harbor improvement and other projects.

The dredges are electro-hydraulically operated with fingertip controls to ease handling and operator fatigue. A two-piece hull disassembles quickly for transfer from one job site to another. All hull connectors are located above the water line assuring no hull leaks.

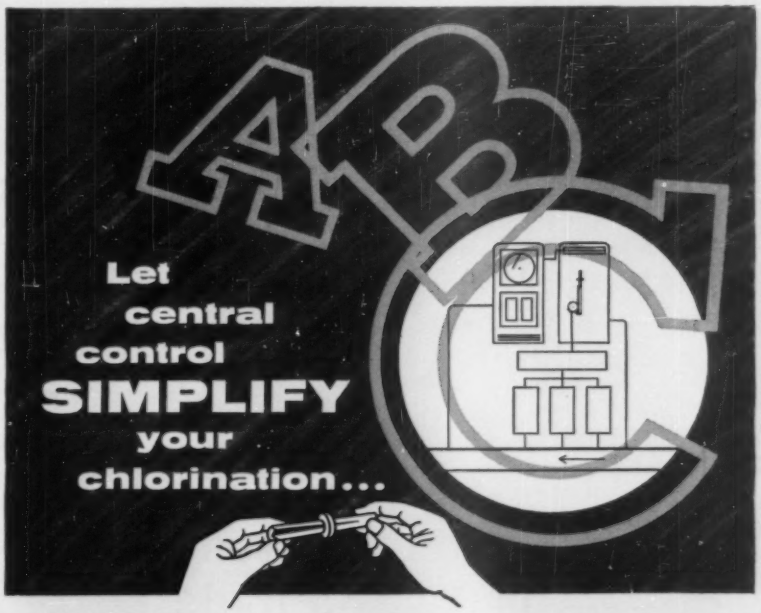


New 125 KW Generators for Cities



A new 125-kw generating set especially developed to meet emergency requirements in modern industrial plants, and public buildings has just been introduced by KATOLIGHT CORP., FIRST & CHESTNUT STS., MANKATO, MINN. The major features are the unitized compact design incorporating Katolight generators, available in all standard voltages, equipped with either close regulating static or rotating exciters, and voltage regulators. The generator is driven by a V8 Roiline engine and can be equipped with gasoline, natural gas, or propane carburetors.

Katolight also manufactures small portable units up through the larger diesel plants ranging from 500 watts through 750 kw. When you write for further particulars, Katolight will send a complimentary copy of their popular, "Life of the Party" songbook.



W&T COMPOUND-LOOP CONTROL

By residual analysis and information feedback, Wallace & Tiernan Compound-loop Control adjusts chlorinator feed rates to changing water flows and chlorine demands. You can add W&T Remote Residual Recording and Controlling Components throughout your water system and centralize control at any desired location. You select the desired residual on a central panel and the Compound-loop System maintains that residual faithfully.

Remote recording by W&T gives you duplicate residual records and minute-to-minute information where it helps guide operation. Remote controlling by W&T lets you adjust a chlorinator miles away. And W&T Remote Components adapt to almost any system, any type of control.

With remote residual recording and controlling by Wallace & Tiernan you centralize control... save time and operating expense... extend the advantages of the Compound-loop method.

For more information, write Dept. S-142.00

WALLACE & TIERNAN INCORPORATED
25 MAIN STREET, BELLEVILLE 9, NEW JERSEY

Stop irrigation failures ...rely on Transite Pipe!

Your irrigation system is only as reliable as the pipe you use. With rust-proof, corrosion-resistant Transite® Pipe, you are assured of trouble-free operation. You see, Transite is made of indestructible minerals that are "at home" in the ground. This composition makes it the ideal pipe for underground irrigation mains.

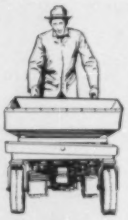
In addition to being the most reliable, Transite is a very economical pipe, too. With its patented Ring-Tite® Coupling, long lengths and light weight, Transite can be installed at the lowest cost. What's more, Transite cannot tuberculate, thus keeping pumping costs at a minimum through the years. And, the Ring-Tite Coupling eliminates water-wasting leaks.

For an irrigation system that will really pamper your lawns and shrubs, choose easy-to-install, maintenance-free Transite Pipe. For full details write Johns-Manville, Box 14, AC-11, New York 16, N. Y. In Canada: Port Credit, Ontario. Cable address: Johnmanvil.

JOHNS-MANVILLE JM PRODUCTS

SAFE PASSAGE FOR PERSONNEL, PUBLIC!

NEW!



POWER SPREADER For Salt-Sand

Gravely Power quickly eliminates work stoppage caused by ice or snow. Personnel, customers, vehicles pass easily, safely when walks and drives are free of ice and snow.

4 Ice, Snow Removal Tools!

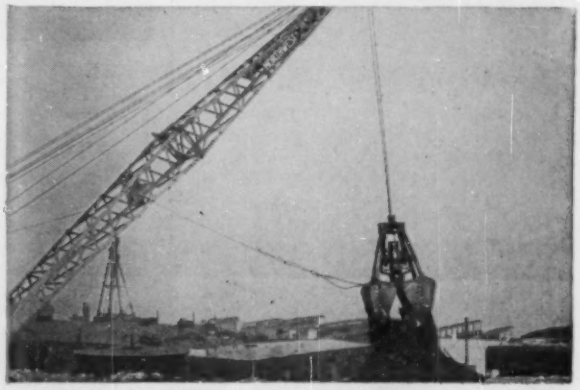
The Gravely powers 4 ice and snow removal Tools to conquer snow problems quickly, effectively! 48" Snowplow, 26" Snowblower, 48" Power Brush and NEW Power Spreader. Write for more information today!

NEW! FREE INDUSTRIAL CATALOG

GRAVELY TRACTORS
P.O. BOX 536L DUNBAR, W. VA.

No spot for a breakdown!

KEEP IT GOING AT ITS BEST...USE ONLY GENUINE HAYWARD REPAIR PARTS!



Hayward Buckets are designed with the most efficient construction features known. And only with *genuine* Hayward replacement parts can you be sure of maintaining that same high quality. Cheaper "bootleg" parts reduce efficiency, raise costs and disrupt schedules.

Anticipate any possible breakdown.

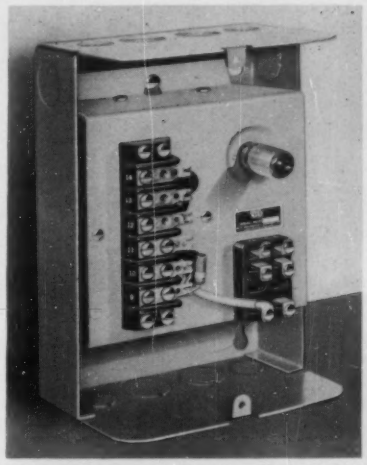
Write today for list of genuine Hayward parts.

THE HAYWARD COMPANY
50 CHURCH ST., DEP'T A, NEW YORK 7, N. Y.
Builders of Better Buckets Since 1888

Versatile Electronic Liquid Level Control

Developed primarily for use on applications involving liquids of medium to high specific resistance—up to 12.5 megohms—this high sensitivity electronic floatless level control is said to incorporate several design features which make it readily adaptable to an extended range of installations. It is designated Type 50-201. Fail-safe operation is assured by wiring to the terminals for either direct or inverse operation. Sensitivity is determined by the value of the fixed resistor mounted on the terminal strip—and selection of proper resistor is based upon the specific resistance of the liquid to be controlled. Typical of those materials on which control has been used during a 3-year field test program are ordinary and deionized water, alcohol, glycols and anhydrous ammonia, as well as various bulk materials with low moisture content.

In addition, the new control unit's low electrode potential — 9 volts D. C.—and low electrode current of less than 1 milliampere eliminated all shock and sparking hazards. Operating characteristics are such that there is no possibility of product contamination due to electrolysis. For long distance applications, the system can be operated over leased telephone lines or other lead wires with the control unit located several miles away.



New high sensitivity electronic liquid level control developed by B/W Controller Corp.

Complete technical data, specifications and price information can be obtained by writing THE B/W CONTROLLER CORP., 2200 E. MAPLE RD., BIRMINGHAM, MICH.

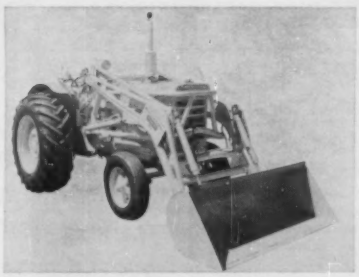
Big Rotary File

A new rotary file unit 7 feet in diameter puts 125,000 record cards in easy reach. Its five step-back tiers hold all cards in view for immediate access by several girls at the same time. The tiers rotate, and since the cards travel to the operator, it speeds finding and filing.

A typical installation places some 250,000 cards in two rotaries. The efficiency of the design shown made it possible to reduce personnel from 6 to 4. A descriptive booklet is available from ACME VISIBLE RECORDS, INC., CROZET, VA.

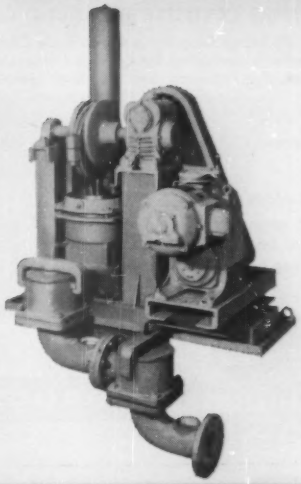
Self-Leveling Loader

A self-leveling, high capacity loader has been designed by the INTERNATIONAL HARVESTER CO., 180 N. MICHIGAN AVE., CHICAGO 1, ILL. for use with the International 660 tractor. To take full advantage of the tractor's built-in brawn, International Wagner No. 625 loader has heavy reinforced lift arms braced at bucket end to produce rigidity at full load. The unit welded tubular frame construction, bolstered with gusseted braces gives strength and durability. Spill back is eliminated by the self-leveling action.



With the tractor's internal hydraulic system 4,000 pounds can be raised to full height of approximately 13 feet in 7½ seconds.

FOR
PERMANENT
POSITIVE
PUMPING



"BUILT FOR WEAR — NOT REPAIR" is the promise behind every Dual Valve Komline-Sanderson Plunger Pump. Designed to provide positive sludge and slurry handling, the Komline-Sanderson standard plunger pump has exceptionally thick wall castings of fine-grained cast iron with 35,000 lb. P.S.I. tensile strength.

"Permanent, positive pumping" means just what it says; reliable, trouble-free pumping and metering year after year. Dual valve pump design provides continuous pumping, regardless of large solids in the sludge.

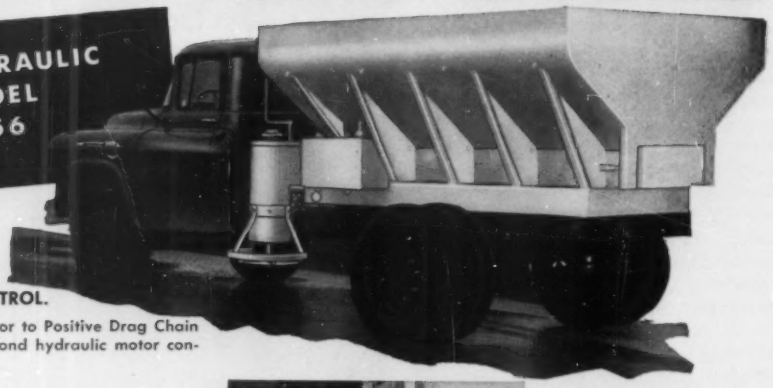
Compare the rugged construction and numerous exclusive features of Komline-Sanderson Plunger Pumps with others on the market, you'll see why they last longer and are much easier to maintain.

Write for Bulletin No. KSP-3

KOMLINE-SANDERSON
ENGINEERING CORPORATION
PEAPACK, NEW JERSEY
BRAMPTON, ONTARIO, CANADA

BAUGHMAN SPREAD-MOBILE

the Spreader that's Better ...for ice control Because...



1. IT OFFERS COMPLETE HYDRAULIC CONTROL.

Speed of discharge from Drag Chain Body Conveyor to Positive Drag Chain Cross Feeder is controlled by hydraulic motor. Second hydraulic motor controls speed of distribution, and width of spread.

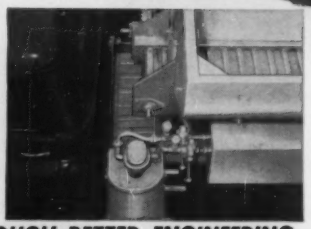
2. EXCLUSIVE "CENTER-SPRED" DESIGN.

Permits spread in front of all four wheels; improves traction, visibility and pattern.

3. ONE-MAN CAB CONTROL.

Width of spread, amount of spread, starting, stopping—all are at driver's finger tips. Driver also controls "Safety Baffle" which dampens spread when approaching pedestrians or cars.

WRITE for illustrated Brochure A-408-B.



New positive drag chain cross feeder, coordinated with main body drag chain conveyor, assures positive flow of material to side mounted distributor.

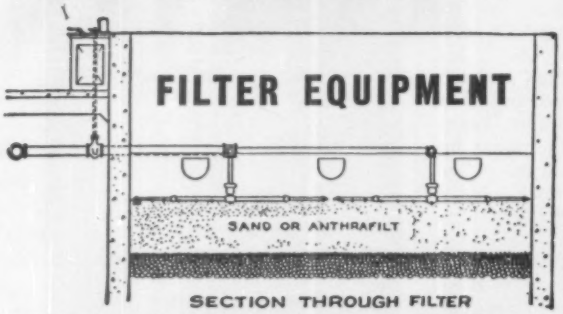
BETTER SERVICE THROUGH BETTER ENGINEERING
SERVICE AND PARTS FROM 200 SERVICE BRANCHES

BAUGHMAN

BAUGHMAN MANUFACTURING COMPANY, INC.

307 SHIPMAN ROAD • JERSEYVILLE, ILLINOIS

PALMER



SECTION THROUGH FILTER

Filter Bed Agitator Advantages

- Requires an average of 40% less wash water
- Eliminates mud balls
- Prevents cracking and shrinking of the beds
- Produces "new" sand after short period of normal operation
- Enables you to increase filter runs up to 50%

Anthrafilt Advantages

- Doubles the length of filter run attainable with sand and quartz media
- Requires one-half as much waste water
- Filters are out of service less because of the shorter wash cycle
- Coating, caking or balling with mud, lime, iron or manganese reduced to the minimum

Write for Circular

PALMER FILTER EQUIPMENT CO.
P. O. BOX 1655, ERIE, PA.

Your Postmaster Suggests:

Avoid . . .

THE LAST MINUTE CHRISTMAS HOLIDAY RUSH

MAIL EARLY!!

"FOR DISTANT OUT-OF-TOWN POINTS	"FOR DELIVERY IN YOUR LOCAL AREA
MAIL BY	*MAIL BY*
DECEMBER 10, 1960"	DECEMBER 16, 1960"

Cut Concrete Quietly

A new, speedy, silent tool known as the Oxweld ACL-4 Powder Lance will burn through concrete and other materials without noise or vibration according to the Linde Co., Division of Union Carbide Corp. In the picture it is burning down the outer wall of a hospital in Jackson, Tenn.

It operates simply, lengths of ordinary black iron pipe are fitted into the end of the powder lance which is connected to an oxygen

supply and a source of special metallic powder, these are mixed in the pipe and carried through the pipe to the material being pierced or cut where it is ignited, producing an extremely high temperature reaction that melts materials in its path.

Use of the new torch is only slightly more expensive than conventional machines. For additional information, write, LINDE CO., DIV. OF UNION CARBIDE CORP., 270 PARK AVE., NEW YORK 17, N. Y.

All-Weather Cabs Keep Equipment on the Job

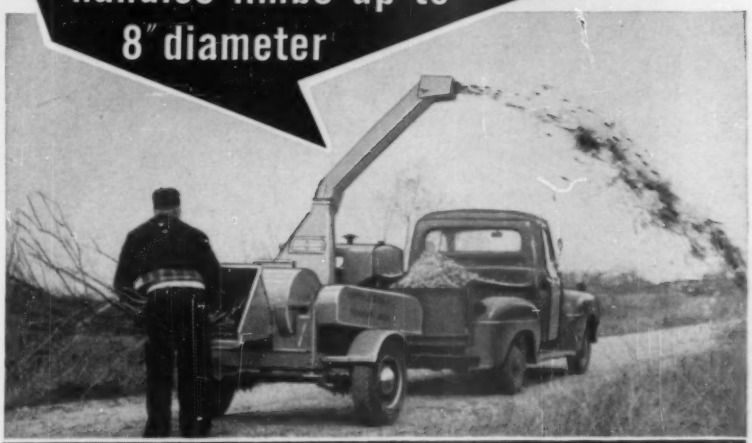
These cabs can be made for any piece of equipment, tractors, tractor shovels, graders, etc. This one is custom-made for the Hough Model H30 Payloader.

It's constructed of 16 gauge sheet metal on 1½" x 1½" x ⅛" angle iron frame. Windows are of safety glass mounted in locking rubber. Right side and rear windows slide open for ventilation.

The hinged door on the left side may be removed from the cab for summer operation by removing pins from hinges. Lower section of the door operates separately from the main door section. The cab measures 51 inches in length, 38 inches in height, 43 inches in width.

Optional equipment includes windshield wiper, heater-defroster unit, inside mounted sun visor, inside mounted rear view mirror. For additional information, write CAMPBELL DETACHABLE CAB CO., WAUCONDA, ILL.

POWERFUL, NEW
M&M BRUSH CHIPPER
handles limbs up to 8" diameter



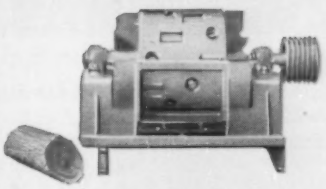
107

AMERICA'S
NO. 1 BRUSH CHIPPER

M & M's exclusive design of small, staggered and tapered cutting knives in the large cylinder allows chips to be *shaved off . . . not cut off*; makes it possible for this new chipper to handle 8 inch logs without creating impact shock responsible for damaging bearing and clutch wear.

Unique twin-bar design allows the chipper to produce either large or small chips . . . a profit-making feature, since small chips have many uses.

The heavy-duty M & M chipper has a built-in blower to regulate direction and distance of chips. Large, heavy rotating cylinder in between heavy-duty roller bearings eliminates overhanging flywheel. All-welded, special alloy steel construction



of simple design assures trouble-free operation and low maintenance costs.

With the addition of this heavy-duty model, Mitts & Merrill manufactures a complete line of chippers in sizes and capacities for any brush disposal requirement. Write today for complete information.

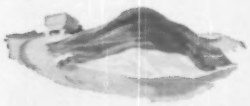
LARGE AND SMALL M&M HANDLES THEM ALL!

MITTS & MERRILL • 1003 So. Water Street • SAGINAW, MICHIGAN

BUILDERS OF WORK-SAVING, MONEY-SAVING AND MATERIAL RECLAIMING MACHINERY SINCE 1854

Keep pavements bare all winter with Solvay Calcium Chloride

—SALT MIXTURES



This winter use the method of leading turnpikes that achieve "no shut-down" records despite the severest weather. Combine Solvay® Calcium Chloride with salt. Make sure you have ample stocks on hand, at money-saving bulk rates.* It can be stored alone, or mixed with salt, outdoors under tarpaulin covers, in indoor sheds or covered bins.

Bulk handling of Solvay Calcium Chloride is a one-man operation, both in loading and application. It can be used economically by large and small highway departments.

Calcium chloride-salt mixtures are effective at all temperatures and humidities. While salt's best range is 25-32°F., calcium chloride speeds melting at all temperatures, even down to below zero . . . provides the moisture salt needs to act. Calcium chloride liberates heat as it melts ice, which helps salt work faster. When you combine the two, applications can be lighter and less frequent. This reduces chemical consumption and lowers cost.

For *instant* skidproofing of icy surfaces, treat abrasives with Solvay Calcium Chloride. They hold fast in wind and traffic at all temperatures.

**Also available in moistureproof bags.*

Write us now. Request "ice control data." If you are interested in applying bulk handling to your set-up, ask for a Solvay representative to call. No obligation!

Allied Chemical

SOLVAY PROCESS DIVISION
61 Broadway, New York 6, N. Y.

SOLVAY branch offices and dealers are located in major centers from coast to coast.

"AT CLEVELAND MOTOR VEHICLE MAINTENANCE DIVISION we save the taxpayers money by protecting against INDUSTRIAL DERMATITIS with Go-Jo Creme Hand Cleaner"

...says Raymond Washington, Garageman, Motor Vehicle Maintenance Division, City of Cleveland, Ohio.

A department that operates on municipal funds has a responsibility to use the taxpayer's dollar wisely. When Dermatitis strikes, on-the-job efficiency suffers and money is wasted. That's why it's important to encourage good skin hygiene and provide Go-Jo Dispensers throughout the shop. The handy dispensers save time and cut clean-up costs 75%.

PURGES DEEPLY IMBEDDED GREASE AND GRIME!
(Excellent for "on-the-spot" cleaning; works best with water.)

PROTECTS AGAINST INDUSTRIAL DERMATITIS WITH MEDICALLY APPROVED GT-7!
(a powerful antiseptic.)

CONTAINS SOOTHING EMOLLIENTS TO PREVENT SKIN DRYING!
(This guards against "dangerous starting conditions" of Dermatitis.)

For further information, write:

2102

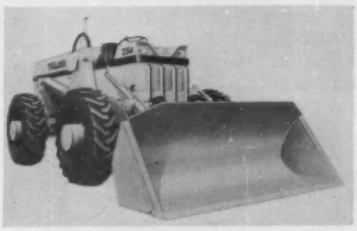
GOJER, INC. Dept. AC-1160
Box 991 – AKRON 9, OHIO

New Tractor Shovel

The latest addition to the Trojan line of tractor shovels is Model 254. It has a 15,000 pound lifting capacity and bucket sizes from 2 to 3 cu. yds.

The company reports such features as full power shift transmission, planetary axles, power steering and four wheel air powered hydraulic brakes permit operators to reach maximum production. A complete line of attachments give it job flexibility and 24 mph road speed permits fast moves from job to job. Safety-curve lift arms give maximum protection to the operator, while extra wide tread and longer wheel base provides excellent stability under the most difficult working conditions.

A torque proportioning differential axle permits maximum utilization of power. Gasoline and diesel operation is available through three engine options. Write Trojan Div., The Yale & Towne Mfg. Co., Batavia, N. Y. for complete details.



Newest Trojan tractor shovel.

Cast Aluminum Waste Receptacle

Vantage is the designation for a new waste receptacle introduced by National Receptacle Co., Inc., Berea, Ohio.

Made entirely of cast aluminum, it is coated with baked enamel (Silver Hammerloid) to withstand wear. Self-closing door swings inward keeping out rain and snow. Flip-top action facilitates emptying. Canvas liner lifts out.

Specifications include weight of approximately 65 pound, 19-inch by 19-inch base, 21-inch by 21-inch top, 46-inch height, 14-inch by 22-inch frame. Poster frames, designed for use with poster panels for a city's message, are optional.

Write the company for additional information.

Functional in design, rustproof and fireproof, the Vantage waste receptacle has a ventilated interior, 55-gallon or 5-bushel capacity.

DRAMATICALLY CLEAN sweeping with Tennant "100" reduces complaints, attracts public interest.

How to give your city an EXTRA-CLEAN name

From Maine to California, progressive cities take pride in the *cleanliness* of their downtown areas—as these are their public "showcases".

It is here—where extra-clean sweeping counts most—that you will find enthusiastic interest in Tennant's revolutionary *vacuumized sweeping.*

You'll see the difference at once, because a Tennant Model "100" Vacuumized Sweeper provides *ultra-clean sweeping . . . with no dust nuisance at all!* For performance, the new "100" is in a class by itself.

Its powerful brush-and-vacuum system picks up the fine dust that's usually missed . . . as well as heavy, bulky debris. It cleans a 7′4″ path.

You'll find it trimly compact, highly maneuverable. Assures outstanding results in downtown areas, dusty alleys, parking lots . . . as well as in attractive residential areas.

WRITE TODAY *for illustrated bulletins, photos and performance data. G. H. Tennant Co., 951M N. Lilac Drive, Minneapolis 22, Minnesota.*

OUR 90th YEAR
TENNANT

VACUUMIZED SWEEPERS

New Gas Detector

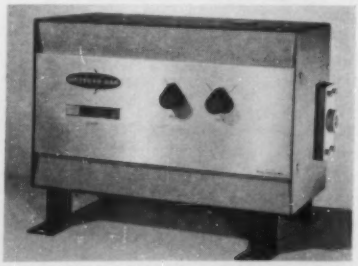
A new safety device that guards against gas explosions was demonstrated in Houston by DETECTOGAS INSTRUMENTS, INC. OF HOUSTON, TEX.

"This small instrument can prevent disasters such as the New London, Texas, school explosion in 1937 and hundreds of other smaller explosions that occur every year in this country," Jack Trench, Detectogas executive vice president, said.

Called the Detectogas Air Density Monitor, it utilizes a mechanical balance principle to provide power-free attendant-free operation around the clock. Most such equipment requires both power and an attendant.

Detectogas Monitor detects changes in air density caused by gas accumulation and can activate any type of alarm system and is not affected by humidity, temperature or atmospheric pressure.

It is said to sell for less than one-third the cost of existing automatic gas detection equipment.



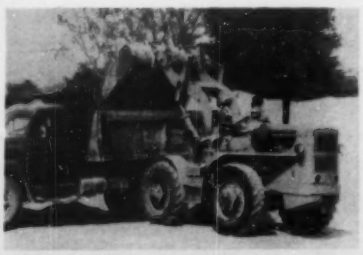
New Detectogas Air Density Monitor detects presence of lighter and heavier-than-air gases by means of the balance-float principle, and the alarm circuit is set off through explosion-proof mercoid switches.

New Traxcavator

A new wheel Traxcavator model #922, with a motor having a net 80 hp. is now available from CATERPILLAR TRACTOR CO., PEORIA, ILL.

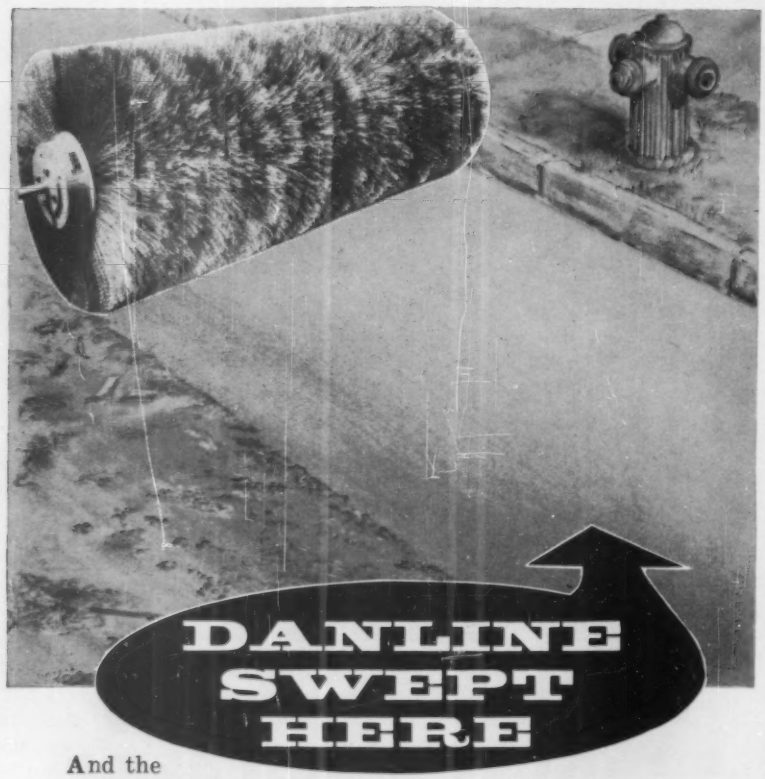
It closely resembles the 105-hp 944 and the 140-hp 966. It has a 1¼-yard bucket and is powered by either a gasoline or diesel engine.

A prime feature of the wheel Traxcavator design like its two "brothers," is the open, easily accessible operator's compartment and the location of all loader mechanism ahead of this compartment.



It has a maximum lift capability of 12 feet 2 inches, a dumping reach of 25¾ inches, a breakout force of 13,700 lbs., turning radius at the outside rear tire is 20 feet 4 inches, and ground clearance is 14⅜ inches.

The 922 has three brake controls. The left brake pedal not only acts to stop the machine, but also automatically shifts the transmission into neutral. The right pedal serves only as a brake. A parking brake locks the transmission output shaft and automatically shifts the forward-reverse lever into neutral.



And the effect is obvious. Nowhere will you find a more suitable sweeping brush than Danline. Thousands of users attest to the cleaner streets they now get every week with their Danline brush. In addition, they find they can lick the problems of heavy spring clean-up, mud from run-off or construction jobs . . . even handle sizeable deposits of sand, or snow, or paving chips. Danline's unique construction, which gives a brushing surface of uniformly distributed round steel wires, is directly responsible for its unmatched, long-life cleaning ability. Where else can you get a product that gives you so much more with up to 75 per cent savings in brush replacement costs? Write or call today for illustrated brochure.

NEWARK

Leadership Proved Through Performance!

59 24

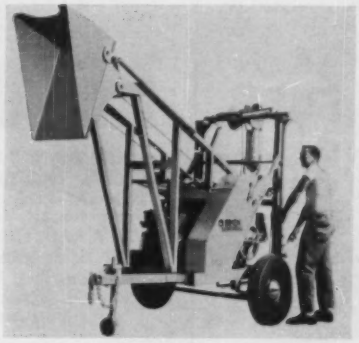
NEWARK BRUSH COMPANY

260 MICHIGAN AVE., KENILWORTH, N. J.

New Automatic Bucket Dumper

A new type bucket dumper features convenient hopper for storing and dumping bucket debris into trucks. Made by O'Brien Mfg. Co., Chicago, Ill., it eliminates truck and traffic tie-up during cleaning operations for, while the bucket is repeatedly pulled through the sewer and unloaded it permits the truck to be used elsewhere while the hopper is being filled. When the hopper is filled it is quickly emptied into the truck so that the truck may move off and not cause traffic congestion.

The Dumper is durably constructed and designed for easy, safe operation, with all controls conveniently grouped. An automatic clutch throw-out prevents the winch from developing excessive cable tension when the bucket encounters obstructions. This unit is used with the standard O'Brien bucket Dumper for simplified sewer cleaning and is available in three power options; 9, 16, and 25 hp.



A new type bucket dumper simplifies sewer cleaning by storing debris until filled.

precision CONTROLS BEST

Automated light cuts accidents, pilferage — provides *guaranteed* plant site security demanded on Government defense contracts. Precision turns lights on automatically at sunset; off at sunrise. Never uses lighting energy when light isn't needed.

Specify PRECISION—to make *low first cost your last cost!*

pm/c PRECISION MULTIPLE CONTROLS

Pioneers in Automated Lighting Control

233 CHESTNUT RIDGEWOOD, N. J.

TWO PIECE

5¼" two-piece sliding or screw type cast iron valve boxes, covering 4" through 10" valves.

ADJUSTABLE VALVE BOXES

THREE PIECE

5¼" three-piece valve boxes supplied with bases for 4" through 24" valves. Interchangeable parts.

Manufactured to the highest standards for sure service.

A complete line of service and roadway boxes, manhole rings and covers. (Covers marked gas or water)

OPELIKA FOUNDRY CO.

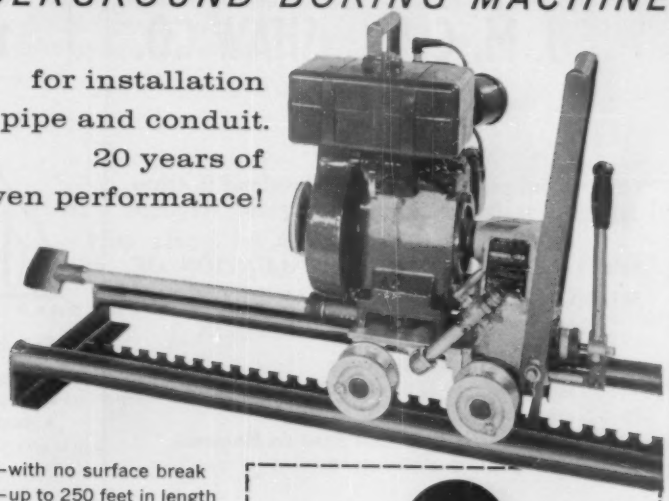
OPELIKA ALABAMA

P. O. Box 326 • Phone SHerwood 5-7672

EARTHWORM

UNDERGROUND BORING MACHINE

for installation of pipe and conduit. 20 years of proven performance!



- BORES—with no surface break
- BORES—up to 250 feet in length
- BORES—up to six inches diameter
- BORES—so drill stem of pipe of conduit stays
- BORES—500 feet on 1 Gal. of gas
- REAMS—up to 12 inches diameter

Write for Bulletin

EBMI

EARTHWORM BORING MACHINE, INC.

P. O. BOX 1100 • 1415 14TH STREET SANTA MONICA, CALIFORNIA

BUILT TO "take it"

WAUSAU PRODUCTS

The WORLD'S MOST COMPLETE LINE of SNOW REMOVAL EQUIPMENT!

NOW - A WAUSAU ROTARY SNOW THROW and Loader for All Makes of Front Loaders

- Wausau Snow Plows - Vee and Blade
- Wausau Snow Wings
- Wausau Underbody Truck-grader Ice Blade
- Wausau EXPRESSWAY
- Wausau Material Spreaders
- Write for full details on all Wausau Products . . . Literature available on every item.

For states, cities, counties, parks, cemeteries, airports, industrial plants, material yards, snow removal contractors . . . thoroughly proven in both performance and reliability, low initial investment . . . low cost operation and upkeep . . . loads approximately 15 cubic yards of windrowed snow per minute.

WAUSAU IRON WORKS
Pioneer Snow Plow Builders
WAUSAU, WISCONSIN

New! on MICHIGAN AVE. at 12th St. in Chicago

Modern Luxury in Downtown Chicago

Free Covered Parking for all guests

CHICAGO'S ONLY DOWNTOWN MOTEL — RIGHT ON MICHIGAN AVENUE ACROSS FROM GRANT PARK. Closest to all convention centers — museums — theatres and shopping. Register from your car. Every room excitingly furnished — tile bath with tub and shower, free TV, AM & FM, Hi-Fi radio, room controlled heating and air-conditioning. Self dialing phones — 24 hour switchboard and message service. Free ice cubes. Room service. Atmospheric restaurant and lounge. Sun deck. Private dining rooms. Free swimming privileges at Acres Cabana Club. Phone HA 7-8200. Teletype CG82

Members: AAA, Best Western Motels, Quality Courts

Closest to all Chicago convention centers. Suites and sample display rooms. Private meeting and banquet rooms.

All major credit cards accepted.
Write for rates, free maps and folders.

Avenue MOTEL
Michigan Ave. at 12th St., Chicago, Ill.

THE J. M. CLEMINSHAW CO.

— APPRAISERS —

Founded 1923

1601 Brookpark Road Cleveland 9, Ohio

SPECIALIZING IN THE REVALUATION OF MUNICIPALITIES AND RURAL PROPERTY FOR LOCAL TAX EQUALIZATION PURPOSES

Brochure & Client List Sent on Request

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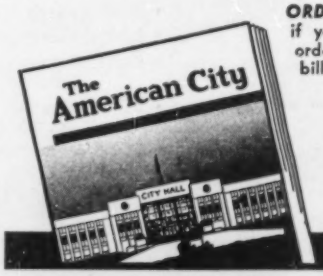
Milwaukee, Wis., 2014 Sunset Court
Union, New Jersey, 2165 Morris Avenue
West Des Moines, Iowa, 712 28th Street

Make Sense Out of Your Water Rates

This is the book that will tell you how to determine—

- Proper water rate earnings
- Fair out-of-city charges
- Logical fire-protection charges
- Air conditioning, construction, service tap and other charges

ORDER TODAY at $2.75 per copy if your payment comes with your order. Otherwise $3.00 if you wish bill.



The American City
470 PARK AVE. SOUTH
NEW YORK 16, N. Y.

a Buttenheim publication

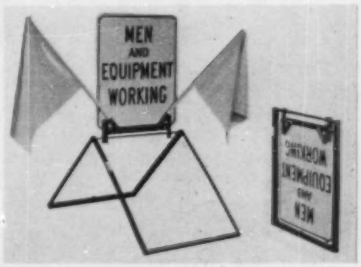
New Multipurpose Sign Standard

A new multipurpose sign standard designed for holding message and directional signs is now being manufactured and marketed by G. D. Bavin Co., W. 6th St. Bldg., Los Angeles 57, Cal.

The "Cadet" sign standard readily lends itself to uses such as warning, traffic direction, guide signs, safety and other duties wherever temporary signs are needed.

As a principal feature, the sign can be quickly collapsed from its working position to a 1-inch thickness. This compactness (26¾" x 22" x 1" thick) allows for storage without loss of space and for easy transportation.

"Cadet" requires slightly less than 6 square feet of ground space, or 22" x 27", and is 19½" high. Total height from ground surface to the top of the sign is 43½".



This Cadet multi-purpose sign made by G. D. Bavin Co. is shown here in position and collapsed for easy storage or transportation.

New "Litterette" Waste Receptacle

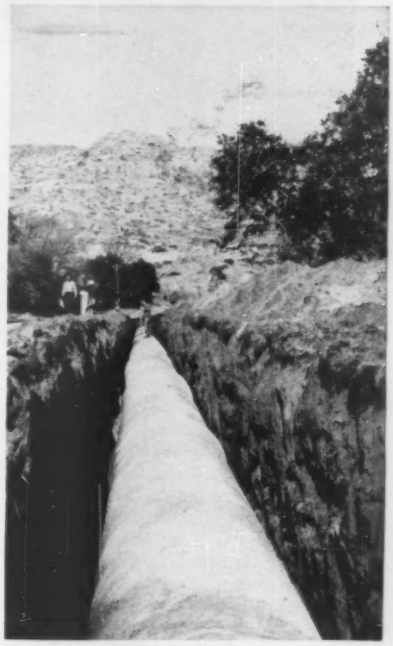
D. J. Alexander Corp., 2944 E. Venango St., Philadelphia 34, Pa. manufacturers of a complete line of waste receptacles and dispensers, introduces Literette . . . a unit that makes it easy to be neat and litter-free. These small waste receptacles, 10 x 18 inches deep, may be mounted on poles, walls, doors, dispensing machines or wherever there's litter.

The inspiration for these units stemmed from a European trip during which it was observed that numerous small, conveniently-placed units contributed much toward the litter-free streets.

Easy to install and empty, large in capacity, they attach anywhere, are pilfer-proof, keep floors clear for maintenance, are unobtrusive, won't disturb traffic flow, have no sharp square edges to snag clothing and are priced for quantity use.

LOS ANGELES *chose* STEEL PIPE *with* O-RING JOINT

Granada Pipeline Unit No. 3, built for the Department of Water & Power, City of Los Angeles, is the first major water pipeline to use "High Strength" steel plate with the new O-ring rubber gasket field joint. This 30,000 foot line through the San Fernando Valley, used 32 foot lengths, 49½ in. diameter pipe with ¼ to ⅜ in. wall thickness. Installation time of the O-ring joint proved to be 90% faster than welded joints and permits deflection up to 2° angle and longitudinal movement of at least one inch without leaking. Final hydrostatic tests showed practically 100% watertight at normal pressure.



. . . every length was hydrostatically tested in the shop to AWWA standards!

STRENGTH
TIGHTNESS
ELASTICITY
ECONOMY
LONG LIFE

. . . these are inherent qualities of fabricated *steel* pipe. Compare *steel* pipe with other types . . . you'll see why "wherever water flows, steel pipes it best." You can always specify *steel* pipe with confidence.

For your copy of the latest steel pipe brochure, write—

STEEL PLATE FABRICATORS ASSOCIATION
105 West Madison Street • Chicago 2, Illinois

STEEL PLATE FABRICATORS ASSOCIATION

SWENSON the Summer-Winter Spreader...

U. S. Army Photograph

for resurfacing and ice control

Spread sand, gravel, salt, calcium chloride, cinders or any combination of these materials. Clutch-controlled from cab of truck. Any desired rate-of-flow. Steady or intermittent up to 30 M.P.H. Narrow strips or full traffic lanes. Forward or reverse. Models to fit any dump-truck box. Chain or hydraulic drive. Speed summer construction jobs, dust control, soil stabilization. Handle winter ice-control problems faster, safer, more efficiently. Write for complete information.

Purchasing News

Unit De-Ices Walks and Streets

For locations such as ramps, pedestrian overpasses, steep roadways, driveways or bridges where ice would prove an especial problem, cities are finding that heater units are removing that hazard. Aberdeen, S. Dak., when it constructed an overpass had heater units embedded in the concrete. Now in a location where it would have had hazardous conditions in severe weather, it has a roadway where neither snow, nor ice forms and safe conditions are assured.

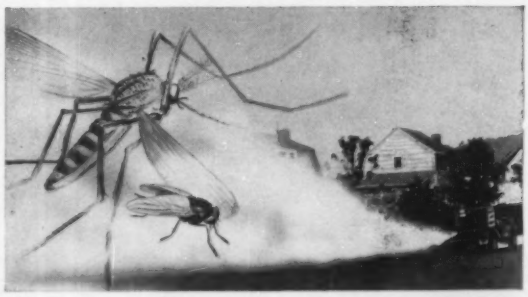
This shows snow melted where heat units were embedded in S. D. overpass.

The cost per year for electric snow removal is less than for removing it by manual labor. Actually, in most localities the actual time that such a snow removal system is in operation is rather small, and therefore, cost is low.

These heater units are installed by the NELSON ELECTRIC MFG. CO., P. O. BOX 5385, TULSA 16, OKLA. Write the company for further details.

New Additions to R. P. Adams Staff

Roland D. Baker has been named sales manager of the Heat Exchanger Division and Richard W. Lyle has been named advertising manager, according to an announcement of R. P. ADAMS CO., INC., 244 E. PARK DR., BUFFALO 17, N. Y., manufacturer of air coolers and filters and liquid filters for both water and process applications including those for swimming pools.



MOSQUITOES
FLIES
AND OTHER
INSECT PESTS
DESTROYED
ON
CONTACT

TIFA

TODD INSECTICIDAL FOG APPLICATOR
Available for Operation on Propane or Gasoline

Lowest-Cost Space Control throughout the community. Peak performance against all insect pests . . . on the dump, over pools, in suburbs, play areas, everywhere insects swarm. Best by test for over 15 years, TIFA sets the records for lowest operating and maintenance costs in 5000 communities throughout the world. True clean fog with maximum efficiency, using newest or older type insecticides (solution, emulsion, suspension) . . . one man operation. **New Starter-Generator (Optional) for immediate starts, easily attached to new and existing TIFA units.**

Listed by Underwriters' Laboratories, Chicago

Write for illustrated folder with details and official comments.

TODD SHIPYARDS CORPORATION
PRODUCTS DIVISION

Sales and Service Departments: Columbia and Halleck Streets, Brooklyn 31, N. Y.
Plant, Sales and Service: Green's Bayou, Houston 15, Texas

Sales and Service Agencies throughout the Western Hemisphere

A New Magnetic Type Meter

. . . which operates on the time-proven nutating disc principle has been introduced by BADGER METER MFG. CO., 4545 W. BROWN DEER RD., MILWAUKEE 23, WIS.

It is said to be the first magnetic drive meter with a disc meter chamber and is driven by a powerful magnetic coupling. Each magnet consists of a no-corrode ceramic ring and is said to have the highest coercive force of any magnet now available.

The register is most readable, digits are ¼ inch tall, permanent and molded to the wheel. A sixth number wheel has been added, extending the totalizer capacity of the ⅝ inch meter to 10 million gallons.

The "tamper-proof", hermetically sealed register eliminates the need for a stuffing box and is sealed against leaks, fogging, corrosion. It can be removed even under water without disturbing the meter in the line.

In operation the full size disc turns the lower drive assembly as water flows through the meter chamber. The entire assembly is suspended in a dual bearing system. The magnets transmit power through a cast bronze wall that separates measuring and register units. The magnetic drive runs on a sapphire jewel bearing. The meter is called "easy-read". Write for descriptive bulletin.

2-in-1 Hoe Attachment

BUCYRUS-ERIE CO., SOUTH MILWAUKEE, WIS., announces a new 2-in-1 hydraulic hoe attachment, designed for hoe or front-end loader with B-E 22-B crawler machines.

Designed for big production trenching in cramped, congested quarters or in areas normally restricted to smaller, less capacity excavators, its outstanding features include a 15-ft. boom; a hydraulic "hoe-down" device which acts as a hydraulic brake to hold down the boom and push-button hydraulic-powered wrist action for a 1½-yd., 72-in. wide dipper which has two cutting edges with teeth for operating as a hoe or as a shovel-front end loader.

In addition to its capacity-boosting advantages, the combination of boom hold down pressure and trench-wide wrist action dipper, ease leveling and cleanout and relieves hand labor for other work.

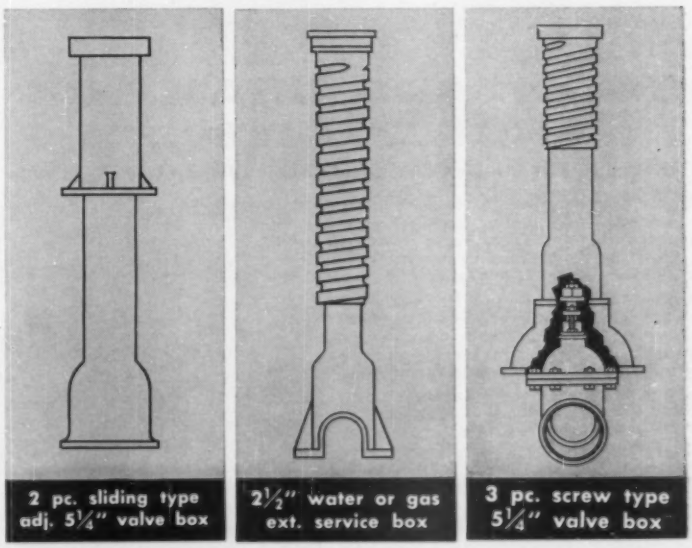
The new 2-in-1 hoe attachment is digging a trench right up to a light pole, showing its ability to operate in tight spots.

BUFFALO PIPE & FOUNDRY

BUFFALO MUNICIPAL CASTINGS

are available in every size and style!

No matter what size, shape or style municipal casting you may desire—you're practically sure to find a "Buffalo" casting to serve your needs. Or, where desired, castings may be made to your own specifications. Whether you need valve, service or roadway boxes, meter boxes, manhole rings and covers or other municipal castings, you'll find all "Buffalo" castings designed for service and dependability.



2 pc. sliding type adj. 5¼" valve box

2½" water or gas ext. service box

3 pc. screw type 5¼" valve box

Prompt quotations given on all your standard or special gray iron or non-ferrous castings.

SINCE 1930
BUFFALO PIPE & FOUNDRY CORP.

Write or wire Dept. J for Bulletin M11.

BOX 55—STATION B DE 6764 BUFFALO 7, N. Y.

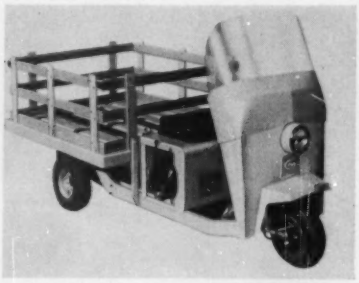
New Truckster For Municipal Maintenance

A new model of the Cushman 780 Truckster that features a Percival flatbed and stake racks is available from CUSHMAN MOTORS, LINCOLN, NEB. a subsidiary of Outboard Marine Corp.

Designed for use in transporting high-bulk, low weight loads, this unit is applicable for warehousing and municipal maintenance.

In such use, the unit features economical operation up to 50 miles per gallon and low maintenance. It also features easy maneuverability for use in tight space.

Its construction utilizes a 7.95-hp air-cooled Cushman Husky engine and a constant mesh transmission. It also has heavy-duty hydraulic brakes on all wheels and an independently operated parking brake.



GOOD ROADS "CHAMPION" SNOW PLOWS...

REVERSIBLE • ONE-WAY • V-PLOWS • RIGID PLOWS

Good Roads snow plows perform smoothly and efficiently under the most adverse snow removal conditions. These rugged, heavy-duty plows are engineered to provide safe, speedy snow removal at low cost.

Models 100 Reversible and 700 One-Way Plows are equipped with the exclusive Good Roads spring-cushioned, safety-blade trip device with automatic return for safe plowing at high speeds, protecting men and equipment.

REVERSIBLE TYPE: Ideal for use in congested areas . . . blade is easily positioned to move snow to the right, left, or straight ahead.

ONE-WAY PLOW: Designed for high-speed, large capacity snow removal from long stretches of open road . . . swivel action allows plow to follow road contour.

V-PLOW TYPE: Built for tough going in deep snow, bucking drifts, opening blockades or widening cuts . . . ideal for highway and turnpike plowing in heavy snowfall areas.

For complete information write:

GOOD ROADS MACHINERY CORP., Minerva, Ohio

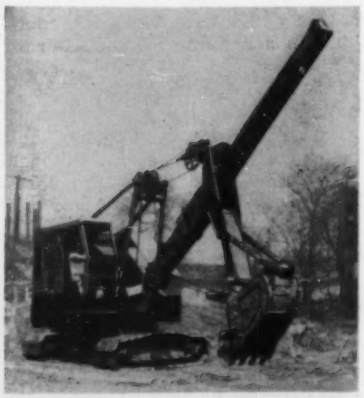
Good Roads MACHINERY

Scavenger • Leaf Collectors • Leaf Loaders • Mulch-Vac Sweepers • Asphalt and Aggregate Spreaders • Snow Plows • Ice and Sleet Control Spreaders

Variable Length Boom for Back Hoes

This new hoe attachment allows an operator to select the best boom length, giving 13 feet of variation on a ¾-yard hoe. Maximum boom length is 23 feet, minimum is 10 feet.

Specifications indicate that the variable length boom feature allows a ¾-yard machine to dig 10 feet of level floor at 20-foot depth with maximum digging depth 23 feet. Other advantages claimed are that line and grade can be better maintained; footings, more accurately dug; trenching in restricted areas and around service lines, facilitated; and dirt can be moved farther from the excavation.



The Super Hoe is adaptable to any type of digging job. The variable length boom greatly increases efficiency on the job.

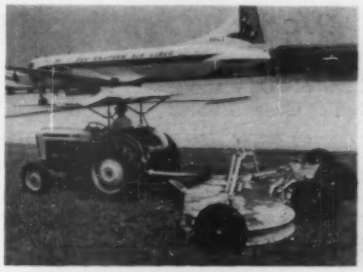
A 10-minute color movie showing the Super Hoe in action, descriptive literature and specifications are available from the manufacturer. Write BURG MFG. CO., WAVERLY, NEBR.

Reduce Mowing Costs at Airports

Budget-minded officials at Houston's sprawling International Airport are now using a 15-foot Mowal Terrain King mower for making quick work of mowing the 600-acre runway area—and to reduce costs.

The flexible unit features three powerful rotary mowers, hinged together, each adjustable to cut from 0" to 15" above the ground. The mower is easily pulled by a light tractor. It cuts a 15-foot swath through grass, brush and weeds. Each unit hugs the ground and allows more uniform cutting over uneven terrain. Outer mowers retract so that the mower can easily be pulled through narrow gates.

Complete information on the Terrain King can be obtained by writing ENGLER MANUFACTURING CORP., 4408 CENTER, HOUSTON, TEX.



Terrain King at Houston airport.

Shirt-Pocket Radio

A transistorized radio receiver that requires 35% less battery uses only 32.5 milliwatts (five milliamperes at 6½ volts.) While a message is being received, the power drain is 58.5 milliwatts, or one-sixth the drain of previous units.

The person wearing the new equipment may be contacted instantly by a base station transmitter, a two-way radio in a car, or by a portable, unit operating on the same frequency. Initially, frequencies in the 150-174 mc. range will be used.

The "Voice Director" weighs only 12 ounces with battery, on standby, ready to receive a call, it power than previous hand-carried equipment is offered by the GENERAL ELECTRIC COMMUNICATION PRODUCTS DEPARTMENT, LYNCHBURG, VA.

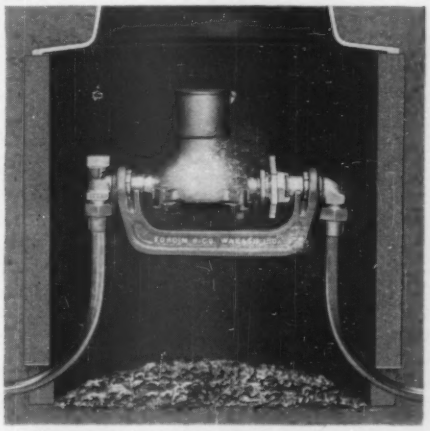
Maddox Joins Allied Materials

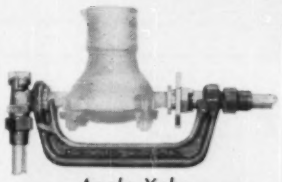
Mel Maddox has joined ALLIED MATERIALS CORP., OKLAHOMA CITY, as manager of the company's newly formed Pipeline Coatings and Materials Division, C. W. Barbour, president, announced.

Maddox comes to Allied from 14 years experience in the pipeline industry, especially with coal tar and asphalt pipeline coatings, epoxy and internal coatings, and the sales and service of pipeline wrap materials and equipment.

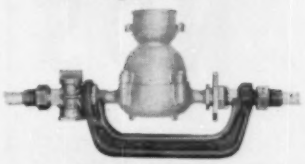
Allied's new Pipeline Coating and Materials division grows out of 28 years experience in the field of specialized asphalt and coal tar products. The division will be the only producer in the industry of both asphalt pipeline enamel and coal tar pipeline enamel. Other major products include coal tar emulsions, and the polysulfide, polymer joint sealing compound, Allied Jet Seal.

Meter Settings "Stay Put" with Ford Yokes





Angle Yoke



Straight Yoke

Riser Yoke with compression valve at each end, outlet valve inverted for basement setting.

Connections to inlet and outlet piping just can't get out of alignment with Ford Yoke settings. Prevent leaks and other difficulties which frequently result from physically disconnecting or disturbing service lines during meter changes. A simple twist of the expansion connection handwheel is all it takes to install or change a water meter in a Ford Yoke setting.

The result: Any meter needing testing or repairing gets immediate attention instead of being left until real trouble develops.

You'll appreciate the savings in time and increases in revenue that accompany a Ford Yoke setting. Millions are in use.

Write for complete information on models available for every condition.

FORD for *better* water services

THE FORD METER BOX COMPANY, INC., Wabash, Indiana

Vertical Centrifugal Pump For Tight Spots

Where space is limited, the new line of OJV and OMW Vertical Split Case Pumps made by the Aurora Pump Div., New York Air Brake Co., Aurora, Ill. are ideal because of their extreme compactness. The long life and dependability of its horizontal split case pumps have been retained in the new

The case is split parallel to the impeller shaft with the suction and discharge flanges integral with the vertical base section. The rotating unit is easily removed for inspection or maintenance without disturbing the suction or discharge piping connections. Double suction impellers are hydraulically and dynamically balanced for smooth, quiet operations.

Ideal for continuous handling of high capacities at medium to high heads, these pumps work excellently in municipal water service, booster service, cooling towers, fuel service, circulating and boiler feed. Capacities range to 6000 GPM and heads to 380 feet. For further information write the company.

Hersey-Sparling Meter Company Announces New Appointments

According to announcements made by Ralph Estus, sales manager, Hersey Sparling Meter Company, Dedham, Mass. Walter O. Weight has been appointed Pacific manager which will include the Los Angeles, San Francisco, Portland and Denver Branches plus Western Canada, Alaska and Hawaii.

Peter H. Hersey will transfer to the Los Angeles Branch sales office.

W. O. Weight

P. H. Hersey

Other appointments include: Mark H. Barnes, manager of the San Francisco branch; J. F. Fuller, manager of the Los Angeles Branch; John F. Meharry, manager, Portland Branch; J. H. Snellgrove, assistant manager, Chicago Branch; E. G. Carder, assistant manager of the Texas Branch; Robert L. Thompson, member of the field sales organization; and B. F. Murtha, salesman for the southern half of Florida.

Red Flint

FILTER SANDS

UNDERDRAIN

GRAVELS

PROCESSED TO EXACTING SPECIFICATIONS
SHIPMENTS MADE BULK or BAGS—ANY QUANTITY

EAU CLAIRE SAND & GRAVEL CO.

Eau Claire, Wis.—Phone TE 4-4164

Distribution of Filter Sands and underdrain Gravels to all States — and Territories of the U. S., Canada and Mexico

Faster LOCATING!

LOWER SERVICE COSTS

with the improved AQUA VALVE BOX LOCATOR!

$32.50 F.O.B. Cin., Ohio

STOCK this useful tool for every service CAR and CALL • Speed • Locating • Keep Customers Happy

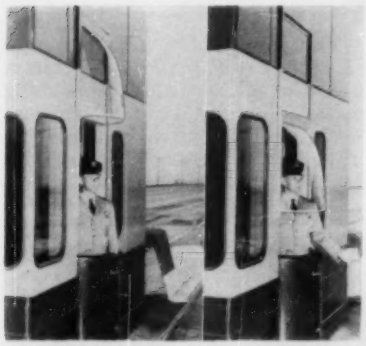
- NO WIRES, BATTERIES or SWITCHES—simple, powerful magnetic action, factory adjusted to YOUR geographical location assures unfailing results!
- NO NEEDLE SPINNING—exclusive electric braking action saves you time!
- NO STOOPING—easy top-view reading!
- RUGGED—compact, accurate, convenient!
- GUARANTEED—to function regardless of weather, surface or ground cover!
- NATION'S MOST WIDELY USED LOCATOR!
- 15-DAY FREE TRIAL—No money! No obligation! You be the judge!

ORDER NOW - Wire or Call VA 1-2514 collect

AQUA SURVEY & INSTRUMENT CO.

7041A Vine St., Cincinnati 16, Ohio

Shield Protects Toll Booth Operators from Weather



When locked in the upper position (left) the Plexiglas shield is out of the operator's way. When pulled down (right) the shield protects the operator from the elements without hindering his movements.

By equipping toll booths with a shaped Plexiglas shield to protect collector-operators during inclement weather, the Garden State Parkway Authority has halved the number of heaters required in the 28 toll booths so far equipped, and measurably reduced operator colds and other ailments caused by standing in drafts. The shield also keeps the toll equipment dry and thereby facilitates paper work in the booth. The shield slides up or down as needed and locks into position.

The collector-protectors are manufactured by the INDUSTRIAL METAL FABRICATING CO., WAYNE, N. J. Plexiglas is a product of ROHM & HAAS CO., WASHINGTON SQ., PHILADELPHIA, PA.

New Asphalt Patcher

The "Hot Roll" model SP18, has been especially designed for the asphalt patching of everything from pot-holes to utility cuts. The intense heat of this 230 pound propane fire roller produces two major results; compaction equal to a 5-ton tandem roller plus a smooth water-tight surface and results are equal on either hot or cold mix.

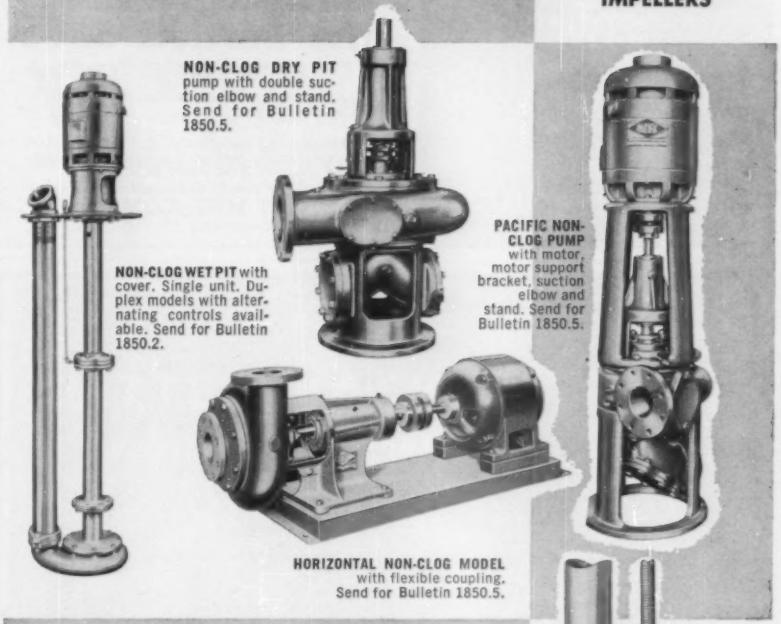
It may also be used in paving sidewalks, patching next to curbs, and municipal parking lots. The roller handle telescopes to 9 feet for reaching wide areas. Carrier hooks attached to the twin handles enable this 18 inch wide "Hot Roll" to be lifted up and onto a truck tail gate for easy hauling.

For further information write to ELLIS DISTRIBUTING CO., Box 168, LIBERTY, MO.

PACIFIC

A TYPE FOR EVERY SERVICE
RUGGED — DEPENDABLE
NON-CLOG
SEWAGE PUMPS

DRY PIT - WET PIT
SUBMERSIBLE
HORIZONTAL
CHOICE OF IMPELLERS



NON-CLOG DRY PIT pump with double suction elbow and stand. Send for Bulletin 1850.5.

NON-CLOG WET PIT with cover. Single unit. Duplex models with alternating controls available. Send for Bulletin 1850.2.

PACIFIC NON-CLOG PUMP with motor, motor support bracket, suction elbow and stand. Send for Bulletin 1850.5.

HORIZONTAL NON-CLOG MODEL with flexible coupling. Send for Bulletin 1850.5.

Outstanding performance and long trouble-free service from every type. Pacific Non-Clog Sewage Pumps combine all desirable design features that assure efficient, economical and dependable operation and service.

Order now. ALL TYPES AVAILABLE FOR IMMEDIATE SHIPMENT.

SUBMERSIBLE NON-CLOG
A complete unit ready to install includes pump, motor, automatic controls and cable to control panel. Send for Bulletin 1850.5.

PACIFIC PUMPING CO.
Established 1907
Manufacturers and Distributors of Pumps for Every Service
MAIN OFFICE AND FACTORY: 9301 San Leandro St., Oakland 3, Calif.
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A
PLECTRON

PATROL
High Frequency F. M.
Radio Receiver
will
KEEP YOU IN TOUCH WITH
YOUR RADIO EQUIPPED
VEHICLES
AND
INCREASE THE EFFICIENCY
OF YOUR DEPARTMENT

Receivers are available on a single, fixed frequency in the 25-54 or 152-174 mc range.

CRYSTAL CONTROLLED—
NOT TUNABLE
NO INSTALLATION
REQUIRED
LONG RANGE RECEPTION
ATTRACTIVE METAL CASE
LOW COST

For complete information
please write, Dept. ACM-5

PLECTRON CORP.
Overton, Nebraska

BARTLETT
Compound Lever
W E COMBINATION
TREE TRIMMER AND
SAW OCTAGON
POLE

Double leverage action of pulley gives extra power. Head sections 30" overall. Easily converted from pole pruner to pole saw for large limbs, and extra lengths can be added to make desired length — Capacity of pruner 1¼" with dropforged, sidecutting blade. Saw will handle larger branches. Has 16" curved blade with peg teeth. Other styles available.
The W E Combination with 2-6 ft. sections is recommended, since it can be used as an 8½ ft. pole, using one section or a 14½ ft. pole by using 2 sections.

Price Complete $37.50 Delivered in U.S.A.
Also available with 2-8 Ft. Sections $39.50

Use Bartlett Saws

No. 114B—26 inch Special Utility Saw combines for the first time: *Quick* cutting, *Smooth* cutting, *Easy* operation. Price $9.75 delivered in U.S.A.

Write now for details and complete catalog.

BARTLETT MFG. COMPANY
3035 E. GRAND BOULEVARD DETROIT 2, MICH.

Statement Required by the Act of August 24, 1912, as amended by the acts of March 3, 1933 and July 2, 1946 (Title 39, United States Code, Section 233) showing the Ownership, Management, and Circulation of

THE AMERICAN CITY published monthly at New York, N. Y., for Oct. 1, 1960.

1. The names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher, Edgar M. Buttenheim, 470 Park Avenue South, New York 16, N. Y.

Managing Editor, None

Business Manager, None

Editor, William S. Foster, 470 Park Avenue South, New York 16, N. Y.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owner must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member, must be given.)

BUTTENHEIM PUBLISHING CORPORATION, 470 Park Avenue South, New York 16, N. Y.

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Edgar M. Buttenheim, 470 Park Avenue South, New York 16, N. Y.
Harold S. Buttenheim, Madison, N. J.
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Martha E. Buttenheim, Ashland, N. H.
Donald V. Buttenheim, 470 Park Avenue South, New York 16, N. Y.
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Hattie Radnitz, c/o Ansonia Hotel, B'way & 73rd St., New York, N. Y.
Frank J. Raymond, Daily News Bldg., Chicago 6, Ill.
Constance B. Swain, Sarasota, Fla.
Florence Wagner, Hollis, L. I., N. Y.

3. The known bondholders, mortgagees, and other security holders, owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. Paragraphs 2 and 3 include, in cases where the stockholders or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was (This information is required by the act of June 11, 1960 to be included in all statements regardless of frequency of issue.). 17,568.

EDGAR M. BUTTENHEIM
Publisher

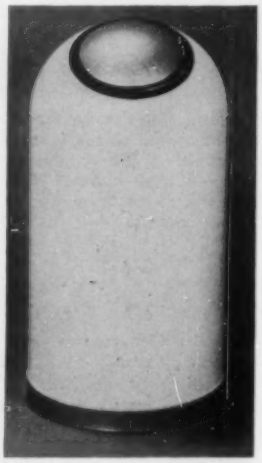
Sworn to and subscribed before me
this 23rd day of September, 1960
Queens Country Clerk's No. 41-0192115
(My commission expires March 30th, 1961)

GERTRUDE E. BAUER
Notary Public
Queens County, N. Y.

Purchasing

New Compact Refuse Receptacle

The new waste container pictured here fills the need for a beautiful and practical self-closing waste receptacle to fit in locations where compact size is important. This unit, produced by BENNETT MFG. CO., INC., ALDEN, N. Y., stands only 30" high, is 15" in diameter,



yet has capacity of 11 gallons. The inner container of tough, thick polyethyleneplastic cannot break, peel, crack, discolor, or mar flooring. It's non-corroding and not affected by acids, syrups, or condiments; washes clean in seconds; is light in weight, of one-piece construction with no bottom seams and no handle bale, the container is easy to maintain, easy to empty.

For Ice Control

Rock salt for ice control will be marketed under the new name of "Safe-T-Salt" this fall by the MORTON SALT CO., 110 N. WACKER DR., CHICAGO 6, ILL.

"Safe-T-Salt" was designed to make the public officials' public relations job easier because it constantly reminds the public of the primary reason for salting treacherous pavements and helps promote efforts to reduce the hazards of winter driving.

It is a screened, economical grade of rock salt, available in bulk or bag and quickly makes streets safe.

Morton Salt Co. is said to have the largest, best equipped salt research laboratory in the world.

Photoelectric Control Mounting

Shown here is a wooden pole and cross arm accessory mounting for a photoelectric control unit for street lights. It consists of a right angle bracket and a round receptacle housing and conforms to EEI-NEMA Standards for twist-lock receptacles and provides full 360 degree orientation for a photoelectric control. A right angle bracket has holes for lag-screws or other convenient mounting arrangement.

The new accessory, which can be used to mount the Lamplighter on any vertical flat surface such as a brick wall, wooden pole or cross arm, has an overall height of 7½ inches. The bracket measures five inches from the bottom to the right angle, and the receptacle head measures 2½ by 2½ inches. For all the details write the ACME WIRE CO., UTILITY PRODUCTS DIV., NEW HAVEN 14, CONN.

Moxon To Represent Computer Measurements Company

Moxon Electronics Corp., Industrial Div., Beverly Hills, Calif. is the new sales representative for Detectron underground pipe detectors, according to the manufacturer, COMPUTER MEASUREMENTS CO., SYLMAR, CALIF.

Moxon will be responsible for the promotion, sales and service of their complete line of products from Los Angeles to the Oregon border. Two Moxon offices will serve the area.

A new free book, prepared to help solve your pipe locating problems titled, "Typical Pipe Detection Problems and Their Solution," is available from Moxon.

GRIMCO Signs

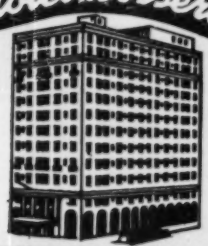
for TOWNS and HIGHWAYS

- STOP SIGNS
- SPEED LIMIT SIGNS
- STREET NAME SIGNS
- ALL U. S. STANDARD WORDINGS
- DIE-EMBOSSED OR SILK SCREENED
- PLAIN OR REFLECTORIZED
- EMBOSSED ALUMINUM OR STEEL
- LICENSE PLATES
- SPECIAL WORDINGS
- PROMPT SHIPMENTS

WRITE FOR A QUOTE OR A CATALOG

GRIMM STAMP & BADGE CO.
8105 Rosalie • St. Louis 17, Mo.

Hotel Bossert



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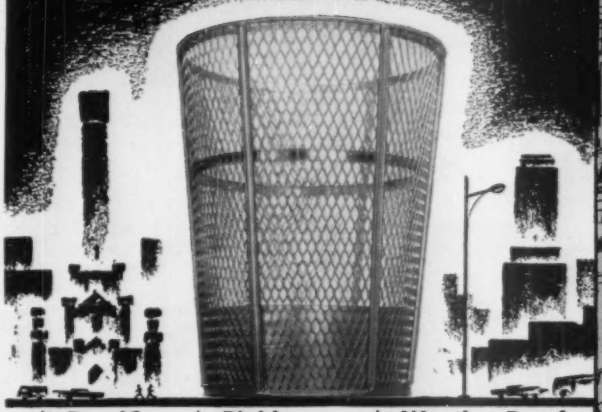

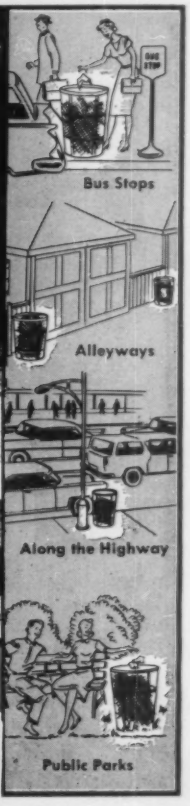

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ABOUT PEOPLE

A. Earl Lee has been appointed vice-president in charge of the newly established Marketing Division of **J. I. Case,** Racine, Wis. According to Wm. J. Grede, president, he will concentrate on meeting the needs of dealers and customers. Lee was previously associated with Massey-Ferguson.

A. Earl Lee

Dr. David B. Steinman, internationally known bridge designer and builder passed away on August 22. He was senior partner in the consulting firm of **Steinman, Boynton, Gronquist & London** of New York City. His bridges are on five continents.

Ray V. Long succeeds his father, Franklin V. Long, as President of Vapor Recovery Systems Company. Mr. Franklin V. Long who passed on recently was founder of **Vapor Recovery Systems Co.** of Compton, Cal., makers of "Varec" sewage gas control equipment.

Ray V. Long

Warren A. Logelin, long-experienced in public relations for American industry, has been named vice president in charge of Public Relations and advertising at **Fairbanks, Morse & Co.,** it was announced recently by Gordon R. Anderson, Executive Vice.

Mr. Logelin succeeds Blair Bolles, who has been elevated to vice president, assistant to the president.

Mr. Kent S. Clow, Jr., Director and assistant vice-president, has been named to the newly created post of assistant to the president of **James B. Clow & Sons, Inc.,** Chicago, manufacturer of cast iron pipe, fittings, waterworks valves and fire hydrants. Mr. Clow was executive vice-president and general manager of the Iowa Valve Co., at Oskaloosa, Iowa, a subsidiary of Clow.

Kent S. Clow, Jr.

Walworth Company, New York 17, N. Y., the nation's oldest manufacturer of valves and pipe fittings, announces the appointment of Gustav A. Hoffman as vice president of sales.

As manager of the newly-organized Water Chemical Sales Division of **Hagan Chemicals & Controls, Inc.,** Pittsburgh, Pa., John P. Kleber will be responsible for coordinating sales of boiler water, municipal and cooling water chemicals.

Jerry M. Magner has been named sales manager of the Water & Waste Division of the **Fischer & Porter Co.,** Warminster, Pa.

Bucyrus-Erie Co., South Milwaukee, Wis., has announced the election of Eugene P. Berg, as executive vice-president.

Berg had previously been general manager of Chicago operations of the Link-Belt Company, manufacturer of conveyor equipment.

Eugene P. Berg

H. G. "Bud" Engel, recently appointed market manager — highway maintenance by the **FWD Corporation,** Clintonville, Wis., will direct the company's product and market development in the highway maintenance field. This includes all types of snowplow and snow removal units, graders, dump trucks and other specialized heavy-duty, multi-drive vehicles for this purpose.

H. G. Engel

Arthur B. Gallion, former Dean of the School of Architecture at the University of Southern California, has been appointed director of planning for the Honolulu office of **Harland Bartholomew & Associates,** city planning/civil engineering firm with headquarters in St. Louis, Mo.

Consolidation of the West Allis centrifugal pump department and the compressor department under the management of E. F. Greiwe has been announced by **Allis-Chalmers Mfg. Co.,** Milwaukee, Wis. H. L. Ross has been appointed as manager of engineering.

Arthur C. Frank has been promoted to district manager and Daryl E. Gaiennie has been appointed assistant sales manager of the **Holan Corp.,** Cleveland, Ohio. Holan manufactures bodies and truck mounted power equipment for municipalities.

Daryl E. Gaiennie

Arthur C. Frank

Harry J. Dempsey, Jr. was appointed Sales Manager of **Newark Brush Co.,** Kenilworth, N. J., according to John E. Stirling. Mr. Dempsey will be fully responsible for the sales of the established line of industrial power brushes as well as the newly developed Danline street brushes.

James E. Blake has been appointed regional manager of the New York Region and Robert I. Browning has been appointed manager of the newly-created Pittsburgh Region of **Crouse-Hinds Company** according to an announcement by A. F. Uhrlandt, director of field sales.

Crouse-Hinds manufactures cast electrical conduit fittings, electrical equipment for hazardous locations, plugs and receptacles, airport lighting products, floodlights and traffic control systems.

R. I. Browning

James E. Blake

Ludlow Valve Manufacturing Co., Inc., Troy, New York recently announced the appointment of Robert J. Mettler of Lima, Ohio, as district sales manager for Ohio, Indiana and Kentucky.

He will be available for consultation on all valve and hydrant installations and will sell and service the Ludlow and Rensselaer lines.

(Continued on page 232)

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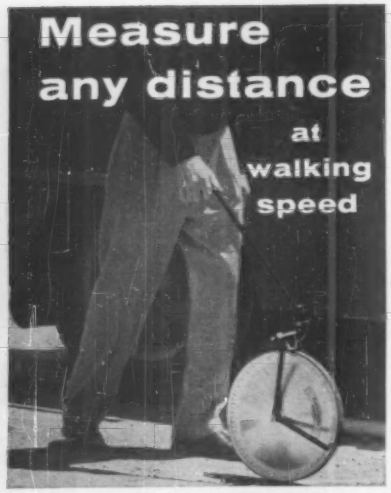

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About People

(Continued from page 230)

Mr. R. Donald Brown was elected by the Board of Directors to the office of executive vice president according to Mr. James E. Irving, president of the **Irving Subway Grating Co., Inc.** of Long Island City.

R. Donald Brown

Mr. Brown has been with the company for 15 years having held the position of secretary and general manager. Mr. James R. Young has been appointed as secretary-treasurer of the company, and was formerly treasurer.

George S. Trees has been elected a vice president of **Chicago Bridge & Iron Company,** world wide steel plate fabricating and construction firm with headquarters in Chicago.

George S. Trees

Mr. Trees had been named a regional sales manager earlier this year. He joined C B & I in 1939, served in several engineering and administrative posts and was elected a director in 1954.

J. H. (Jack) Allen has been promoted to vice president of sales by **Buffalo - Springfield Co.,** a division of Koehring Co., Springfield, Ohio, manufacturer of street and road compaction equipment. Allen who was formerly vice president of export sales will now be responsible for sale of roller and drill equipment in the domestic market and drilling equipment in the export market.

J. H. (Jack) Allen

Allen joined Buffalo-Springfield in 1959 when the Stardrill-Keystone Company with whom he was then employed, was acquired by Koehring and made part of the Buffalo-Springfield Division.

A new office in Memphis, Tenn. has been opened by **Harland Bartholomew and Associates,** city planners, civil engineers and landscape architects. William S. Pollard, Jr., partner in the firm, will be in charge of the office which will be located at 188 Jefferson Avenue. It will offer the full professional services of the firm.

Appointment of J. S. Quinn as manager of the Omaha district office has been announced by **Allis-Chalmers Industries Group,** Milwaukee, Wisconsin. The Omaha district includes eastern, central and part of western Nebraska as well as part of western Iowa. Quinn had been manager of heavy industry sales in Allis-Chalmers St. Louis district.

The appointment of William M. Freeman as sales manager of **Chicago Bridge & Iron Company's** New York district has been announced by the world wide steel plate fabricating and construction firm.

Mr. Freeman assumes his new position after two years as manager of CB&I's process equipment sales group.

Joseph F. Heil, Jr., sales manager of the Tank Division of the **Heil Company,** Milwaukee, Wis., has announced the following recent personnel appointments: Frank N. Doherty has been made eastern district tank sales manager, with headquarters at the firm's Hillside, N. J. office; Paul D. Miller, Doherty's predecessor as eastern district tank sales manager, has been transferred to Heil's Milwaukee office to become sales manager of government contracts.

* * *

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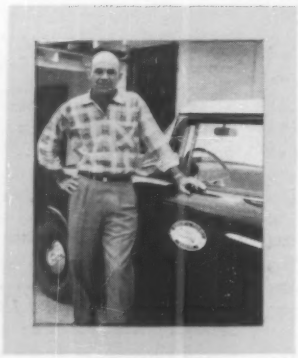

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New Tractor Shovel brings new economies to small town

Michigan introduces Model 55A, early purchaser reports it does many jobs previously skipped (or handled by $10/hr. rental units)

Like many small communities, the Village of Pewaukee, Wisconsin, for years handled loading and clean-up chores with a farm-type tractor and various pieces of rental equipment. As may be expected, costs were high. But so too, reasoned the Village Board, would be the initial expense of buying a bigger machine . . . especially to a town of only 2000 people.

Then last spring, Aring Equipment Co, Michigan Distributor in Milwaukee, showed the new Michigan 1 yard Model 55A. Price, with trade-in, under $10,000. Back-hoe, snow plow, sweeper, a lot of other attachments could be added later.

Everyone was impressed. It was easy to figure how this unit's four-wheel-drive, speed and versatility could cut expenses. Also, how it might handle the many jobs previously not done at all or, at best, done inefficiently.

"Since then," says Gary Boyce, Pewaukee Supt of Public Works, "we've used our Michigan *for everything*." For instance . . .

Saves $50 weekly rental at the sanitary landfill. The Village makes a monthly pick-up; between times, villagers dump their own trash and rubbish. Once a week a rented crawler would clean up; between times the dump was messy. Now, the Michigan, with 26 mph mobility, runs out every day or two. Clean-up is done quickly, the old $10 per hour crawler rental expense is eliminated.

Cleans lakefront. Located on a popular resort lake, Pewaukee has the problem of keeping its beach clean. Lake residents and motor boats cut weeds. Prevailing winds blow them to shore . . . sometimes piling them a foot thick. Previously, each cleanup took 15 man hours . . . "hand hours" since the farm tractor couldn't work in sand. Now, the Michigan wades in hub-deep, shoves weeds onto shore, loads them in truck. In *one hour* the job's done.

Stockpile-loads sand, salt, blacktop, stone. The power steer, powershift Model 55A with 1 yd bucket heaps a 5 yd truck in five passes, 2 to 2½ minutes. Pewaukee's old farm-type loader took 5 to 7 minutes for the same job . . . *if* the material wasn't frozen.

Takes place of truck. When trucks are busy, the Michigan may carry its own load a block or a mile or more. Street patching is a good example. Here, the 26 mph Model 55A carries a yard of blacktop down the street —stops at potholes—operator or helper hand-shovels and packs in materials as needed.

Tree trimming. Due to inadequate equipment, this once was a chore rarely attempted. Now, the Michigan, used as a fast-moving lift-truck, raises a man up to 8 feet off the ground for trimming with chain saw or 18 foot pruner. Thus street lights have been made more efficient . . . traffic hazards removed.

These are but a few of the jobs where the 66½ hp Model 55A is saving time, trouble, and money for the Village of Pewaukee. Let us show you, *first-hand, how it can do the same for you!*

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